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#### **CLAIM AMENDMENTS**

1. (Currently Amended) A method of treating or preventing or preventing an autoimmune disorder in a subject, comprising the step of administering to a subject in need of such treatment an effective amount of at least one sterol absorption inhibitor or a pharmaceutically acceptable salt or solvate thereof, wherein the at least one sterol absorption inhibitor is selected from the group consisting of sterol absorption inhibitors represented by the following Formulae:

#### (a) Formula (I):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$

$$R^{1}$$

$$R^{3}$$

$$R^{3}$$

$$Ar^{2}$$

$$Ar^{2}$$

$$Ar^{2}$$

$$Ar^{2}$$

$$Ar^{2}$$

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

Ar<sup>1</sup> and Ar<sup>2</sup> are independently selected from the group consisting of aryl and R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is aryl or R<sup>5</sup>-substituted aryl;

X, Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R and R<sup>2</sup> are independently selected from the group consisting of -OR<sup>6</sup>, -O(CO)R<sup>6</sup>, -O(CO)OR<sup>8</sup> and -O(CO)NR<sup>6</sup>R<sup>7</sup>:

R<sup>1</sup> and R<sup>3</sup> are independently selected from the group consisting of hydrogen, lower alkyl and aryl;

q is 0 or 1; r is 0 or 1;

m, n and p are independently selected from 0, 1, 2, 3 or 4; provided that at least one of q and r is 1, and the sum of m, n, p, q and r is 1, 2, 3, 4, 5 or 6; and provided that when p is 0 and r is 1, the sum of m, q and n is 1, 2, 3, 4 or 5;

 $R^4$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0-2}R^9$ ,  $-O(CH_2)_{1-10}$ - $COOR^6$ ,  $-O(CH_2)_{1-10}CONR^6R^7$ ,  $-(lower alkylene)COOR^6$ ,  $-CH=CH-COOR^6$ ,  $-CF_3$ , -CN,  $-NO_2$  and halogen;

 $R^5$  is 1-5 substituents independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1.5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0.2}R^9$ ,  $-O(CH_2)_{1-10}-COOR^6$ ,  $-O(CH_2)_{1-10}CONR^6R^7$ ,  $-(Iower alkylene)COOR^6$  and  $-CH=CH-COOR^6$ ;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

### (b) Formula (III):

$$Ar^{1}$$
 $Ar^{2}$ 
 $Ar^{3}$ 
 $R^{2}$ 
 $Ar^{3}$ 
 $Ar^{2}$ 

(111)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (III) above:

Ar<sup>1</sup> is R<sup>3</sup>-substituted aryl;

Ar<sup>2</sup> is R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is R<sup>5</sup>-substituted aryl;

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Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

A is selected from -O-, -S-, -S(O)- or -S(O)2-;

 $R^{1}$  is selected from the group consisting of  $-OR^{6}$ ,  $-O(CO)R^{6}$ ,  $-O(CO)OR^{9}$  and  $-O(CO)NR^{6}R^{7}$ ;  $R^{2}$  is selected from the group consisting of hydrogen, lower alkyl and aryl; or  $R^{1}$  and  $R^{2}$  together are =O;

g is 1, 2 or 3;

p is 0, 1, 2, 3 or 4;

 $R^5$  is 1-3 substituents independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1.5}OR^9$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2$ -lower alkyl,  $-NR^6SO_2$ -aryl,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0.2}$ -alkyl,  $S(O)_{0.2}$ -aryl,  $-O(CH_2)_{1-10}$ - $COOR^6$ ,  $-O(CH_2)_{1-10}$ - $COOR^6$ , o-halogeno, m-halogeno, o-lower alkyl, m-lower alkyl, -(lower alkylene)- $COOR^6$ , and

-CH=CH-COOR6:

R<sup>3</sup> and R<sup>4</sup> are independently 1-3 substituents independently selected from the group consisting of R<sup>5</sup>, hydrogen, p-lower alkyl, aryl, -NO<sub>2</sub>, -CF<sub>3</sub> and p-halogeno;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

#### (c) Formula (IV):

(IV)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (IV) above:

A is selected from the group consisting of R<sup>2</sup>-substituted heterocycloalkyl, R<sup>2</sup>-substituted heterocycloalkyl, R<sup>2</sup>-substituted benzofused heterocycloalkyl, and R<sup>2</sup>-substituted benzofused heterocycloalkyl;

Ar<sup>1</sup> is anyl or R<sup>3</sup>-substituted anyl;

Ar<sup>2</sup> is aryl or R<sup>4</sup>-substituted aryl;

Q is a bond or, with the 3-position ring carbon of the azetidinone, forms the

R<sup>1</sup> is selected from the group consisting of:

 $-(CH_2)_q$ -, wherein q is 2-6, provided that when Q forms a spiro ring, q can also be zero or 1;

 $-(CH_2)_e$ -G- $(CH_2)_r$ -, wherein G is -O-, -C(O)-, phenylene, -NR<sup>8</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;

-(C2-C6 alkenylene)-; and

 $-(CH_2)_{\Gamma}V-(CH_2)_{g^{-1}}$ , wherein V is  $C_3-C_6$  cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6;

R<sup>5</sup> is selected from:

-CH-, -C(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -CF-, -C(OH)-, -C(C<sub>6</sub>H<sub>4</sub>-R<sup>9</sup>)-, -N-, or -
$$^{+}$$
NO-;

 $R^6$  and  $R^7$  are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and

-C(C<sub>1</sub>-C<sub>8</sub> alkyl)=CH-; or R<sup>5</sup> together with an adjacent R<sup>6</sup>, or R<sup>5</sup> together with an adjacent R<sup>7</sup>, form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>8</sub> alkyl)- group;

a and b are independently 0, 1, 2 or 3, provided both are not zero; provided that when  $R^6$  is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, a is 1; provided that when  $R^7$  is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, b is 1; provided that when a is 2 or 3, the  $R^6$ 's can be the same or different; and provided that when b is 2 or 3, the  $R^7$ 's can be the same or different;

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and when Q is a bond. R<sup>1</sup> also can be selected from:

where M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are independently selected from the group consisting of  $-CH_{2^-}$ ,  $-CH(C_1-C_6$  alkyl)- and  $-C(di-(C_1-C_6)$  alkyl);

R<sup>10</sup> and R<sup>12</sup> are independently selected from the group consisting of -OR<sup>14</sup>, -O(CO)R<sup>14</sup>, -O(CO)OR<sup>18</sup> and -O(CO)NR<sup>14</sup>R<sup>15</sup>;

 $R^{11}$  and  $R^{13}$  are independently selected from the group consisting of hydrogen,  $(C_1-C_8)$ alkyl and aryl; or  $R^{10}$  and  $R^{11}$  together are =0, or  $R^{12}$  and  $R^{13}$  together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4; provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

 $R^2$  is 1-3 substituents on the ring carbon atoms selected from the group consisting of hydrogen,  $(C_1-C_{10})$ alkyl,  $(C_2-C_{10})$ alkenyl,  $(C_2-C_{10})$ alkynyl,

(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl, (C<sub>3</sub>-C<sub>6</sub>)cycloalkenyl, R<sup>17</sup>-substituted aryl, R<sup>17</sup>-substituted benzyl,

R<sup>17</sup>-substituted benzyloxy, R<sup>17</sup>-substituted anyloxy, halogeno, -NR<sup>14</sup>R<sup>15</sup>,

 $NR^{14}R^{15}(C_1-C_6 \text{ alkylene})-, NR^{14}R^{15}C(O)(C_1-C_6 \text{ alkylene})-,-NHC(O)R^{16},$ 

OH,  $C_1$ - $C_6$  alkoxy,  $-OC(O)R^{16}$ ,  $-COR^{14}$ , hydroxy( $C_1$ - $C_6$ )alkyl, ( $C_1$ - $C_6$ )alkyl,  $NO_2$ ,  $-S(O)_{0-2}R^{16}$ ,  $-SO_2NR^{14}R^{15}$  and  $-(C_1$ - $C_6$  alkylene)COOR<sup>14</sup>; when  $R^2$  is a

substituent on a heterocycloalkyl ring,  $R^2$  is as defined, or is =0 or  $O^{(CH_2)_{1.2}}$ ; and, where  $R^2$  is a substituent on a substitutable ring nitrogen, it is hydrogen,  $(C_1-C_6)$ alkyl, aryl,  $(C_1-C_6)$ alkoxy, aryloxy,  $(C_1-C_6)$ alkylcarbonyl, arylcarbonyl, hydroxy,  $-(CH_2)_{1.6}$ CONR<sup>18</sup>R<sup>18</sup>,

wherein J is -O-, -NH-, -NR<sup>18</sup>- or -CH<sub>2</sub>-;

 $R^{3} \text{ and } R^{4} \text{ are independently selected from the group consisting of } 1-3 \text{ substituents independently selected from the group consisting of } (C_{1}-C_{6})\text{alkyl}, \\ -OR^{14}, -O(CO)R^{14}, -O(CO)OR^{18}, -O(CH_{2})_{1-5}OR^{14}, -O(CO)NR^{14}R^{15}, -NR^{14}R^{15}, \\ -NR^{14}(CO)R^{15}, -NR^{14}(CO)OR^{16}, -NR^{14}(CO)NR^{15}R^{19}, -NR^{14}SO_{2}R^{16}, -COOR^{14}, \\ -CONR^{14}R^{15}, -COR^{14}, -SO_{2}NR^{14}R^{15}, S(O)_{0-2}R^{16}, -O(CH_{2})_{1-10}-COOR^{14}, \\ -O(CH_{2})_{1-10}CONR^{14}R^{15}, -(C_{1}-C_{6} \text{ alkylene})-COOR^{14}, -CH=CH-COOR^{14}, -CF_{3}, -CN, -NO_{2} \text{ and halogen;}$ 

R<sup>8</sup> is hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>14</sup> or -COOR<sup>14</sup>;

 $\text{R}^9$  and  $\text{R}^{17}$  are independently 1-3 groups independently selected from the group consisting of hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>1</sub>-C<sub>6</sub>)alkoxy, -COOH, NO<sub>2</sub>, -NR  $^{14}$ R  $^{15}$ , OH and halogeno;

 $R^{14}$  and  $R^{15}$  are independently selected from the group consisting of hydrogen,  $(C_1-C_6)$ alkyl, aryl and aryl-substituted  $(C_1-C_8)$ alkyl;

R<sup>16</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>17</sup>-substituted aryl;

R<sup>18</sup> is hydrogen or (C<sub>1</sub>-C<sub>6</sub>)alkyl; and

R<sup>19</sup> is hydrogen, hydroxy or (C<sub>1</sub>-C<sub>6</sub>)alkoxy;

(d) Formula (V):

$$Ar^{1} \times_{m} (C)_{q} \times_{R^{1}} S(O)_{r} Ar^{2}$$

$$Ar^{2} \times_{m} R^{1} \times_{R^{1}} Ar^{2}$$

**(V)** 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (V) above:

Ar<sup>1</sup> is aryl, R<sup>10</sup>-substituted aryl or heteroaryl;

Ar<sup>2</sup> is aryl or R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is aryl or R<sup>5</sup>-substituted aryl;

X and Y are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R is  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$  or  $-O(CO)NR^6R^7$ ; R<sup>1</sup> is hydrogen, lower alkyl or aryl; or R and R<sup>1</sup> together are =O;

q is 0 or 1;

r is 0. 1 or 2:

m and n are independently 0, 1, 2, 3, 4 or 5; provided that the sum of m, n and q is 1, 2, 3, 4 or 5;

 $R^4$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0-2}R^9$ ,  $-O(CH_2)_{1-10}$ - $COOR^6$ ,  $-O(CH_2)_{1-10}CONR^6R^7$ ,  $-(lower alkylene)COOR^6$  and  $-CH=CH-COOR^6$ ;

 $R^5$  is 1-5 substituents independently selected from the group consisting of  $-{\rm OR}^6, -{\rm O(CO)R}^6, -{\rm O(CO)OR}^9, -{\rm O(CH_2)_{1-5}OR}^6, -{\rm O(CO)NR}^6R^7, -{\rm NR}^6R^7, -{\rm NR}^6({\rm CO)R}^7, -{\rm NR}^6({\rm CO)NR}^7R^8, -{\rm NR}^6{\rm SO_2R}^9, -{\rm COOR}^6, -{\rm CONR}^6R^7, -{\rm COR}^6, -{\rm SO_2NR}^6R^7, {\rm S(O)_{0-2}R}^9, -{\rm O(CH_2)_{1-10}-COOR}^6, -{\rm O(CH_2)_{1-10}CONR}^6R^7, -{\rm CF_3}, -{\rm CN}, -{\rm NO_2}, halogen,$ 

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-(lower alkylene)COOR<sup>6</sup> and -CH=CH-COOR<sup>6</sup>;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl;

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl; and

R<sup>10</sup> is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ , -CONR<sup>6</sup>R<sup>7</sup>, -COR<sup>6</sup>, -SO<sub>2</sub>NR<sup>6</sup>R<sup>7</sup>, -S(O)<sub>0-2</sub>R<sup>9</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>-COOR<sup>6</sup>,

-O(CH<sub>2</sub>)<sub>1-10</sub>CONR<sup>6</sup>R<sup>7</sup>, -CF<sub>3</sub>, -CN, -NO<sub>2</sub> and halogen;

#### (e) Formula (VI):

$$R_4$$
 $R_1$ 
 $R_2$ 
 $R_2$ 
 $R_3$ 
 $R_{20}$ 
 $R_{21}$ 

(VI)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

R<sub>1</sub> is

-CH-, -C(lower alky!)-, -CF-, -C(OH)-, -C(C<sub>6</sub>H<sub>5</sub>)-, -C(C<sub>6</sub>H<sub>4</sub>-R<sub>15</sub>)-, -N- or 
$$\xrightarrow{-1}$$
NO ;

R2 and R3 are independently selected from the group consisting of: -CH2-, -CH(lower alkyl)-, -C(di-lower alkyl)-, -CH=CH- and -C(lower alkyl)=CH-; or R1 together with an adjacent R2, or R1 together with an adjacent R3, form a -CH=CH- or a -CH=C(lower alkyl)- group;

u and v are independently 0, 1, 2 or 3, provided both are not zero; provided that when R2 is -CH=CH- or -C(lower alkyl)=CH-, v is 1; provided that when R3 is

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-CH=CH- or -C(lower alkyl)=CH-, u is 1; provided that when v is 2 or 3, the R2's can be the same or different; and provided that when u is 2 or 3, the R3's can be the same or different;

R4 is selected from B-(CH2)mC(O)-, wherein m is 0, 1, 2, 3, 4 or 5;

B-(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 0, 1, 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)e-Z-(CH<sub>2</sub>)r-, wherein Z is -O-, -C(O)-, phenylene, -N(R<sub>8</sub>)- or -S(O)<sub>0-2</sub>-, e is 0, 1, 2, 3, 4 or 5 and r is 0, 1, 2, 3, 4 or 5, provided that the sum of e and r is 0, 1, 2, 3, 4, 5 or 6;

B-(C2-C6 alkenylene)-;

B-(C4-C6 alkadienylene)-;

B-(CH2)t-Z-(C2-C6 alkenylene)-, wherein Z is as defined above, and wherein t is 0,

1, 2 or 3, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1, 2, 3, 4 or 5 and g is 0,

1, 2, 3, 4 or 5, provided that the sum of f and g is 1, 2, 3, 4, 5 or 6;

B-(CH2)t-V-(C2-C6 alkenylene)- or

B-(C<sub>2</sub>-C<sub>6</sub> alkenylene)-V-(CH<sub>2</sub>)t-, wherein V and t are as defined above, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)a-Z-(CH<sub>2</sub>)b-V-(CH<sub>2</sub>)d-, wherein Z and V are as defined above and a, b and d are independently 0, 1, 2, 3, 4, 5 or 6, provided that the sum of a, b and d is 0, 1, 2, 3, 4, 5 or 6; or T-(CH<sub>2</sub>)s-, wherein T is cycloalkyl of 3-6 carbon atoms and s is 0, 1, 2, 3, 4, 5 or 6; or

R1 and R4 together form the group B-CH=C-;

B is selected from indanyl, indenyl, naphthyl, tetrahydronaphthyl, heteroaryl or W-substituted heteroaryl, wherein heteroaryl is selected from the group consisting of pyrrolyl, pyridinyl, pyrimidinyl, pyrazinyl, triazinyl, imidazolyl, thiazolyl, pyrazolyl, thienyl, oxazolyl and furanyl, and for nitrogen-containing heteroaryls, the N-oxides thereof, or

W is 1 to 3 substituents independently selected from the group consisting of lower alkyl, hydroxy lower alkyl, lower alkoxy, alkoxyalkyl, alkoxyalkoxy, alkoxycarbonylalkoxy, (lower alkoxyimino)-lower alkyl, lower alkanedioyl, lower alkyl lower alkanedioyl, allyloxy, -CF3, -OCF3, benzyl, R7-benzyl, benzyloxy,

R7-benzyloxy, phenoxy, R7-phenoxy, dioxolanyl, NO2,-N(R8)(R9), N(R8)(R9)-lower alkylene-, N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylenyloxy-, OH, halogeno, -CN, -N<sub>3</sub>, -NHC(O)OR<sub>10</sub>, -NHC(O)R<sub>10</sub>, R1102SNH-, (R1102S)2N-,  $-S(0)_2NH_2$ , -S(O)<sub>0-2</sub>R<sub>8</sub>, butyldimethyl-silyloxymethyl, -C(O)R<sub>12</sub>, -COOR19. -CON(R<sub>8</sub>)(R<sub>9</sub>), CH=CHC(O)R<sub>12</sub>, -lower alkylene-C(O)R<sub>12</sub>, R<sub>10</sub>C(O)(lower alkylenyloxy)-,

N(R8)(R9)C(O)(lower alkylenyloxy)- and CH<sub>2</sub>- N R<sub>13</sub> for substitution on ring carbon atoms,

and the substituents on the substituted heteroaryl ring nitrogen atoms, when present, are selected from the group consisting of lower alkyl, lower alkoxy, -C(O)OR<sub>10</sub>, -C(O)R<sub>10</sub>, OH, N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylene-,N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylenyloxy-, -

R7 is 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, -COOH, NO2, -N(R8)(R9), OH, and halogeno;

R8 and R9 are independently selected from H or lower alkyl;

S(O)<sub>2</sub>NH<sub>2</sub> and 2-(trimethylsilyl)-ethoxymethyl:

R<sub>10</sub> is selected from lower alkyl, phenyl, R<sub>7</sub>-phenyl, benzyl or R<sub>7</sub>-benzyl;

R<sub>11</sub> is selected from OH, lower alkyl, phenyl, benzyl, R<sub>7</sub>-phenyl or R<sub>7</sub>-benzyl; R<sub>12</sub> is selected from H, OH, alkoxy, phenoxy, benzyloxy.

- NR<sub>13</sub>, -N(R<sub>8</sub>)(R<sub>9</sub>), lower alkyl, phenyl or R<sub>7</sub>-phenyl;

R<sub>13</sub> is selected from -O-, -CH<sub>2</sub>-, -NH-, -N(lower alkyl)- or -NC(O)R<sub>19</sub>;

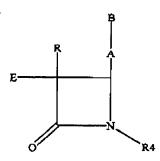
R15, R16 and R17 are independently selected from the group consisting of H and the groups defined for W; or R15 is hydrogen and R16 and R17, together with adjacent carbon atoms to which they are attached, form a dioxolaryl ring;

R19 is H, lower alkyl, phenyl or phenyl lower alkyl; and R20 and R21 are independently selected from the group consisting of phenyl, W-substituted phenyl, naphthyl, W-substituted naphthyl, indanyl, indenyl, tetrahydronaphthyl, benzodioxolyl, heteroaryl, W-substituted heteroaryl, benzofused heteroaryl, W-substituted benzofused heteroaryl and cyclopropyl, wherein heteroaryl is as defined above:

# (f) Formula (VIIA) or (VIIB):

(VIIA)

or



(VIIB)

or a pharmaceutically acceptable salt or solvate thereof, wherein:

A is -CH=CH-, -C $\equiv$ C- or -(CH<sub>2</sub>)<sub>p</sub>- wherein p is 0, 1 or 2;

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B is

B' is

D is -(CH<sub>2</sub>)<sub>m</sub>C(O)- or -(CH<sub>2</sub>)<sub>q</sub>- wherein m is 1, 2, 3 or 4 and q is 2, 3 or 4:

E is C<sub>10</sub> to C<sub>20</sub> alkyl or -C(O)-(C<sub>9</sub> to C<sub>19</sub>)-alkyl, wherein the alkyl is straight or branched, saturated or containing one or more double bonds;

R is hydrogen, C1-C15 alkyl, straight or branched, saturated or containing one or more double bonds, or B-(CH2)<sub>r</sub> -, wherein r is 0, 1, 2, or 3;

R1, R2, R3, R1', R2', and R3' are independently selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, carboxy, NO<sub>2</sub>, NH<sub>2</sub>, OH, halogeno, lower alkylamino, dilower alkylamino, -NHC(O)OR<sub>5</sub>, R<sub>6</sub>O<sub>2</sub>SNH- and -S(O)<sub>2</sub>NH<sub>2</sub>;

R<sub>4</sub> is

wherein n is 0, 1, 2 or 3;

R5 is lower alkyl; and

R6 is OH, lower alkyl, phenyl, benzyl or substituted phenyl wherein the substituents are 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, carboxy, NO2, NH2, OH, halogeno, lower alkylamino and dilower alkylamino;

(g) Formula (VIII):

(VIII)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (VIII) above,

R<sup>26</sup> is H or OG<sup>1</sup>:

G and G<sup>1</sup> are independently selected from the group consisting of

and 
$$R^{4a}Q R^{3a}$$
  $R^{4a}Q R^{5a}$   $R^{4a}Q R^{5a}$   $R^{4a}Q R^{5a}$   $R^{4a}Q R^{5a}$   $R^{4a}Q R^{5a}$   $R^{4a}Q R^{5a}$  provided that when  $R^{26}$  is H or  $R^{4a}Q R^{5a}$ 

OH, G is not H;

R, R<sup>a</sup> and R<sup>b</sup> are independently selected from the group consisting of H, -OH, halogeno, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)-alkoxy or -W-R<sup>30</sup>;

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N(R $^{31}$ )-, -NH-C(O)-N(R $^{31}$ )- and -O-C(S)-N(R $^{31}$ )-;

 $R^2$  and  $R^6$  are independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl(C1-C6)alkyl;

 $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^7$ ,  $R^{3a}$  and  $R^{4a}$  are independently selected from the group consisting of H, (C1-C6)alkyl, aryl(C1-C6)alkyl, -C(O)(C1-C6)alkyl and -C(O)aryl;

 ${\sf R}^{30}$  is selected from the group consisting of  ${\sf R}^{32}\text{-substituted}$  T,  ${\sf R}^{32}\text{-substituted-T-(C1-C6)alkyl, R}^{32}\text{-substituted-(C2-C4)alkenyl,}$ 

R<sup>32</sup>-substituted-(C<sub>1</sub>-C<sub>6</sub>)alkyl, R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl and R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl(C<sub>1</sub>-C<sub>6</sub>)alkyl;

R31 is selected from the group consisting of H and (C1-C4)alkyl;

T is selected from the group consisting of phenyl, furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, thiazolyl, iosthiazolyl, benzothiazolyl, thiadiazolyl, pyrazolyl, imidazolyl and pyridyl;

R<sup>32</sup> is independently selected from 1-3 substituents independently selected from the group consisting of halogeno, (C<sub>1</sub>-C<sub>4</sub>)alkyl, -OH, phenoxy,

-CF3, -NO2, (C1-C4)alkoxy, methylenedioxy, oxo, (C1-C4)alkylsulfanyl,

(C1-C4)alkylsulfinyl, (C1-C4)alkylsulfonyl, -N(CH3)2, -C(O)-NH(C1-C4)alkyl,

-C(O)-N((C1-C4)alkyl)2, -C(O)-(C1-C4)alkyl, -C(O)-(C1-C4)alkoxy and pyrrolidinylcarbonyl; or R<sup>32</sup> is a covalent bond and R<sup>31</sup>, the nitrogen to which it is attached and R<sup>32</sup> form a pyrrolidinyl, piperidinyl, N-methyl-piperazinyl, indolinyl or morpholinyl group, or a (C1-C4)alkoxycarbonyl-substituted pyrrolidinyl, piperidinyl, N-methylpiperazinyl, indolinyl or morpholinyl group;

Ar<sup>1</sup> is aryl or R<sup>10</sup>-substituted aryl;

Ar<sup>2</sup> is anyl or R<sup>11</sup>-substituted anyl;

Q is a bond or, with the 3-position ring carbon of the azetidinone.

 $R^{12}$   $(R^{13})_a$  forms the spiro group  $(R^{14})_b$ ; and

R<sup>1</sup> is selected from the group consisting of

-(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 2-6, provided that when Q forms a spiro ring, q can also be zero or 1:

-(CH<sub>2</sub>)<sub>e</sub>-E-(CH<sub>2</sub>)<sub>r</sub>-, wherein E is -O-, -C(O)-, phenylene, -NR<sup>22</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;

-(C2-C6)alkenylene-; and

-(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6;

R<sup>12</sup> is

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 $R^{13}$  and  $R^{14}$  are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and

-C(C1-C6 alkyl)=CH-; or R<sup>12</sup> together with an adjacent R<sup>13</sup>, or R<sup>12</sup> together with an adjacent R<sup>14</sup>, form a -CH=CH- or a -CH=C(C1-C6 alkyl)- group;

a and b are independently 0, 1, 2 or 3, provided both are not zero; provided that when R<sup>13</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, a is 1; provided that when R<sup>14</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, b is 1; provided that when a is 2 or 3, the R<sup>13</sup>'s can be the same or different; and provided that when b is 2 or 3, the R<sup>14</sup>'s can be the same or different; and when Q is a bond, R<sup>1</sup> also can be:

X, Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub>)alkyl- and -C(di-(C<sub>1</sub>-C<sub>6</sub>)alkyl);

R<sup>10</sup> and R<sup>11</sup> are independently selected from the group consisting of 1-3 substituents independently selected from the group consisting of

(C1-C6)alkyl, -OR<sup>19</sup>, -O(CO)R<sup>19</sup>, -O(CO)OR<sup>21</sup>, -O(CH<sub>2</sub>)<sub>1-5</sub>OR<sup>19</sup>,

-O(CO)NR19R20, -NR19R20, -NR19(CO)R20, -NR19(CO)OR21

-NR19(CO)NR20R25, -NR19SO2R21, -COOR19, -CONR19R20, -COR19

 $-SO_2NR^{19}R^{20}$ ,  $S(O)_{0-2}R^{21}$ ,  $-O(CH_2)_{1-10}-COOR^{19}$ ,  $-O(CH_2)_{1-10}CONR^{19}R^{20}$ ,

-(C1-C6 alkylene)-COOR<sup>19</sup>, -CH=CH-COOR<sup>19</sup>, -CF<sub>3</sub>, -CN, -NO<sub>2</sub> and halogen;

R<sup>15</sup> and R<sup>17</sup> are independently selected from the group consisting of -OR<sup>19</sup>, -O(CO)R<sup>19</sup>, -O(CO)OR<sup>21</sup> and -O(CO)NR<sup>19</sup>R<sup>20</sup>;

 $R^{16}$  and  $R^{18}$  are independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl and aryl; or  $R^{15}$  and  $R^{16}$  together are =0, or  $R^{17}$  and  $R^{18}$  together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4;

provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6;

provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

$$R^{15}$$
  
- $X_j$ - $(C)_v$ - $Y_k$ - $S(O)_{0-2}$ -

and when Q is a bond and R<sup>1</sup> is R<sup>16</sup>, Ar<sup>1</sup> can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

R<sup>19</sup> and R<sup>20</sup> are independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl-substituted (C1-C6)alkyl;

R<sup>21</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>24</sup>-substituted aryl;

R<sup>22</sup> is H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>19</sup> or -COOR<sup>19</sup>;

R<sup>23</sup> and R<sup>24</sup> are independently 1-3 groups independently selected from the group consisting of H, (C1-C6)alkyl, (C1-C6)alkoxy, -COOH, NO<sub>2</sub>,

-NR<sup>19</sup>R<sup>20</sup>, -OH and halogeno; and

R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy; and

(h) Formula (IX):

$$Ar^1$$
 $R^{26}$ 
 $R^8$ 
 $R^8$ 
 $R^{26}$ 
 $R^{26}$ 
 $R^{26}$ 

or a pharmaceutically acceptable salt or solvate thereof, wherein in Formula (IX):

R<sup>1</sup> is selected from the group consisting of H, G, G<sup>1</sup>, G<sup>2</sup>, -SO<sub>3</sub>H and -PO<sub>3</sub>H;

G is selected from the group consisting of: H,

$$R^5O$$
  $OR^4$   $R^5O$   $OR^4$   $OR^7$   $OR^7$   $OR^7$   $OR^5$   $OR^3$   $OR^4$   $OR^3$   $OR^4$   $OR^3$   $OR^4$   $OR^3$   $OR^4$   $OR^5$   $OR^3$   $OR^4$   $OR^5$   $OR^5$ 

wherein R, R<sup>a</sup> and R<sup>b</sup> are each independently selected from the group consisting of H, -OH, halo, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)alkoxy or -W-R<sup>30</sup>;

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N(R $^{31}$ )-, -NH-C(O)-N(R $^{31}$ )-; and -O-C(S)-N(R $^{31}$ )-;

R<sup>2</sup> and R<sup>6</sup> are each independently selected from the group consisting of H, (C1-C6)alkyl, acetyl, aryl and aryl(C1-C6)alkyl;

 $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^7$ ,  $R^{3a}$  and  $R^{4a}$  are each independently selected from the group consisting of H, (C1-C6)alkyl, acetyl, aryl(C1-C6)alkyl, -C(O)(C1-C6)alkyl and -C(O)aryl;

R<sup>30</sup> is independently selected from the group consisting of R<sup>32</sup>-substituted T, R<sup>32</sup>-substituted-T-(C<sub>1</sub>-C<sub>6</sub>)alkyl, R<sup>32</sup>-substituted-(C<sub>2</sub>-C<sub>4</sub>)alkenyl, R<sup>32</sup>-substituted-(C<sub>1</sub>-C<sub>6</sub>)alkyl, R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl and R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl(C<sub>1</sub>-C<sub>6</sub>)alkyl;

 $\mathsf{R}^{31}$  is independently selected from the group consisting of H and (C1-C4)alkyl;

T is independently selected from the group consisting of phenyl, furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, benzothiazolyl, thiadiazolyl, pyrazolyl, imidazolyl and pyridyl;

R<sup>32</sup> is independently selected from 1-3 substituents which are each independently selected from the group consisting of H, halo, (C1-C4)alkyl, -OH, phenoxy, -CF3, -NO2, (C1-C4)alkoxy, methylenedioxy, oxo, (C1-C4)alkylsulfanyl, (C1-C4)alkylsulfinyl, (C1-C4)alkylsulfonyl, -N(CH3)2, -C(O)-NH(C1-C4)alkyl, -C(O)-N((C1-C4)alkyl)2, -C(O)-(C1-C4)alkyl, -C(O)-(C1-C4)alkoxy and pyrrolidinylcarbonyl; or R<sup>32</sup> is a covalent bond and R<sup>31</sup>, the nitrogen to which it is attached and R<sup>32</sup> form a pyrrolidinyl, piperidinyl, N-methyl-piperazinyl, indolinyl or morpholinyl group, or a (C1-C4)alkoxycarbonyl-substituted pyrrolidinyl, piperidinyl, N-methylpiperazinyl, indolinyl or morpholinyl group;

G<sup>1</sup> is represented by the structure:

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wherein R<sup>33</sup> is independently selected from the group consisting of unsubstituted alkyl, R34-substituted alkyl, (R35)(R36)alkyl-,

R<sup>34</sup> is one to three substituents, each R<sup>34</sup> being independently selected from the group consisting of HOOC-, HO-, HS-, (CH<sub>3</sub>)S-, H<sub>2</sub>N-, (NH<sub>2</sub>)(NH)C(NH)-, (NH<sub>2</sub>)C(O)- and HOOCCH(NH<sub>2</sub>+)CH<sub>2</sub>SS-;

R<sup>35</sup> is independently selected from the group consisting of H and NH<sub>2</sub>-;

· R36 is independently selected from the group consisting of H, unsubstituted alkyl, R<sup>34</sup>-substituted alkyl, unsubstituted cycloalkyl and R<sup>34</sup>-substituted cycloalkyl;

G<sup>2</sup> is represented by the structure:

wherein R37 and R38 are each independently selected from the group consisting of (C<sub>1</sub>-C<sub>6</sub>)alkyl and aryl;

R<sup>26</sup> is one to five substituents, each R<sup>26</sup> being independently selected from the group consisting of:

- H; a)
- b) -QH;
- c) -OCH<sub>3</sub>;
- fluorine: d)

- e) chlorine;
- f) -O-G:
- g) -O-G<sup>1</sup>;
- h) -O-G<sup>2</sup>;
- i) -SO<sub>3</sub>H; and

provided that when R1 is H, R26 is not H, -OH, -OCH3 or -O-G;

Ar<sup>1</sup> is aryl, R<sup>10</sup>-substituted aryl, heteroaryl or R<sup>10</sup>-substituted heteroaryl;

Ar<sup>2</sup> is aryl, R<sup>11</sup>-substituted aryl, heteroaryl or R<sup>11</sup>-substituted heteroaryl;

L is selected from the group consisting of:

- a) a covalent bond;
- b)  $-(CH_2)_{q}$ , wherein q is 1-6;
- c) -(CH<sub>2</sub>)<sub>e</sub>-E-(CH<sub>2</sub>)<sub>r</sub>, wherein E is -O-, -C(O)-, phenylene, -NR<sup>22</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;
- d) –(C<sub>2</sub>-C<sub>6</sub>)alkenylene-;
- e) -(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub>cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6; and

f)

$$-M-Y_{d} - C - Z_{h} - X_{m} - (C)_{8} - Y_{h} - (C)_{9} - Z_{p} - X_{m} - (C)_{v} - Y_{k} - S(O)_{0.2} - C$$

wherein M is -O-, -S-, -S(O)- or -S(O)<sub>2</sub>-;

X, Y and Z are each independently selected from the group consisting of  $-CH_2$ -,  $-CH(C_1-C_6)$ alkyl- and  $-C(di-(C_1-C_6)$ alkyl)-;

R<sup>8</sup> is selected from the group consisting of H and alkyl;

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 $R^{10}$  and  $R^{11}$  are each independently selected from the group consisting of 1-3 substituents which are each independently selected from the group consisting of (C1-C6)alkyl,  $-OR^{19}$ ,  $-O(CO)R^{19}$ ,  $-O(CO)OR^{21}$ ,  $-O(CH_2)_{1-5}OR^{19}$ ,  $-O(CO)NR^{19}R^{20}$ ,  $-NR^{19}R^{20}$ ,  $-NR^{19}(CO)R^{20}$ ,  $-NR^{19}(CO)OR^{21}$ ,  $-OR^{19}(CO)R^{20}$ ,  $-O(CH_2)_{1-10}CONR^{19}$ ,  $-O(CH_2)_{1-1$ 

 $R^{15}$  and  $R^{17}$  are each independently selected from the group consisting of  $-OR^{19}$ ,  $-OC(O)R^{19}$ ,  $-OC(O)OR^{21}$ ,  $-OC(O)NR^{19}R^{20}$ ;

 $R^{16}$  and  $R^{18}$  are each independently selected from the group consisting of H,  $(C_1-C_6)$  alkyl and aryl;

or R<sup>15</sup> and R<sup>16</sup> together are =0, or R<sup>17</sup> and R<sup>18</sup> together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1;

t is 0 or 1;

m, n and p are each independently selected from 0-4:

provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, n and p is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are each independently 1-5, provided that the sum of j, k and v is 1-5;

Q is a bond, -(CH<sub>2</sub>)q-, wherein q is 1-6, or, with the 3-position ring carbon of the azetidinone, forms the spiro group

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$$R^{12}$$
  $(R^{13})_a$ 

wherein R12 is

 $R^{13}$  and  $R^{14}$  are each independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-; or  $R^{12}$  together with an adjacent  $R^{13}$ , or  $R^{12}$  together with an adjacent  $R^{14}$ , form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>6</sub> alkyl)- group;

a and b are each independently 0, 1, 2 or 3, provided both are not zero; provided that when  $R^{13}$  is -CH=CH- or -C(C1-C6 alkyl)=CH-, a is 1; provided that when  $R^{14}$  is -CH=CH- or -C(C1-C6 alkyl)=CH-, b is 1; provided that when a is 2 or 3, the  $R^{13}$ 's can be the same or different; and provided that when b is 2 or 3, the  $R^{14}$ 's can be the same or different:

and when Q is a bond and L is

then Ar<sup>1</sup> can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

R<sup>19</sup> and R<sup>20</sup> are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl and aryl-substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl;

R<sup>21</sup> is (C1-C6)alkyl, aryl or R<sup>24</sup>-substituted aryl;

R<sup>22</sup> is H, (C1-C6)alkyl, aryl (C1-C6)alkyl, -C(O)R<sup>19</sup> or -COOR<sup>19</sup>;

 $R^{23}$  and  $R^{24}$  are each independently selected from the group consisting of 1-3 substituents which are each independently selected from the group consisting of H, (C1-C6)alkyl, (C1-C6)alkoxy, -COOH, NO<sub>2</sub>, -NR<sup>19</sup>R<sup>20</sup>, -OH and halo; and

R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy;

for the treatment of an autoimmune disorder in a subject.

2. (Original) The method according to claim 1, wherein the at least one sterol absorption inhibitor is represented by Formula (I):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$
 $Ar^{3}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 
 $Ar^{3}$ 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

Ar<sup>1</sup> and Ar<sup>2</sup> are independently selected from the group consisting of aryl and R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is anyl or R<sup>5</sup>-substituted anyl;

X, Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R and R<sup>2</sup> are independently selected from the group consisting of -OR<sup>6</sup>, -O(CO)OR<sup>9</sup> and -O(CO)NR<sup>6</sup>R<sup>7</sup>;

R<sup>1</sup> and R<sup>3</sup> are independently selected from the group consisting of hydrogen, lower alkyl and aryl;

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q is 0 or 1;

r is 0 or 1;

m, n and p are independently selected from 0, 1, 2, 3 or 4; provided that at least one of q and r is 1, and the sum of m, n, p, q and r is 1, 2, 3, 4, 5 or 6; and provided that when p is 0 and r is 1, the sum of m, q and n is 1, 2, 3, 4 or 5;

 $R^4$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0-2}R^9$ ,  $-O(CH_2)_{1-10}$ - $-COOR^6$ ,  $-O(CH_2)_{1-10}CONR^6R^7$ ,  $-(lower alkylene)COOR^6$ ,  $-CH=CH-COOR^6$ ,  $-CF_3$ , -CN,  $-NO_2$  and halogen;

 $R^5$  is 1-5 substituents independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0-2}R^9$ ,  $-O(CH_2)_{1-10}$ - $-COOR^6$ ,  $-O(CH_2)_{1-10}CONR^6R^7$ ,  $-(Iower alkylene)COOR^6$  and  $-CH=CH-COOR^6$ ;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl.

3. (Original) The method according to claim 1, wherein the at least one sterol absorption inhibitor is represented by Formula (II):

(II)

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or a pharmaceutically acceptable salt or solvate thereof.

- 4. ~ 10. (Cancel).
- 11. (Original) The method according to claim 1, wherein the at least one sterol absorption inhibitor is administered to a subject in an amount ranging from about 0.1 to about 1000 milligrams of sterol absorption inhibitor per day.
- 12. (Original) The method according to claim 1, further comprising the step of administering at least one other agent useful for the treatment of an autoimmune disorder to the subject.
- 13. (Currently Amended) The method according to claim 12, wherein the other agent useful for the treatment of an autoimmune disorder is selected from the group consisting of:
  - a) disease modifying antirheumatic drugs:
  - b) nonsteroidal anitinflammatory anti-inflammatory drugs;
  - c) COX-2 selective inhibitors;
  - d) COX-1 inhibitors:
  - e) immunosuppressives; p70<sup>S6</sup> kinase inhibitors; and inosine monophosphate dehydrogenase inhibitors;
  - f) steroids;
  - g) biological response modifiers; and
  - h) other agents useful for the treatment of autoimmune disorders.
- 14. (Original) The method according to claim 1, further comprising the step of administering at least one HMG CoA reductase inhibitor to the subject.
- 15. (Original) The method according to claim 14, wherein the at least one HMG CoA reductase inhibitor is atorvastatin.

- 16. (Original) The method according to claim 14, wherein the at least one HMG CoA reductase inhibitor is simvastatin.
- 17. (Original) The method according to claim 1, wherein the subject has an autoimmune disorder selected from the group consisting of: Alopecia Areata, Ankylosing Spondylitis, Antiphospholipid Syndrome, Autoimmune Addison's Disease, Autoimmune Diabetes, Autoimmune Hemolytic Anemia, Autoimmune Hepatitis, Behcet's Disease, Bullous Pemphigoid, Cardiomyopathy, Celiac Sprue-Dermatitis, Chronic Fatigue Immune Dysfunction Syndrome (CFIDS), Chronic Inflammatory Demyelinating Polyneuropathy, Churg-Strauss Syndrome, Cicatricial Pemphigoid, CREST Syndrome, Cold Agglutinin Disease, Crohn's Disease, Discoid Lupus, Essential Mixed Cryoglobulinemia, Fibromyalgia-Fibromyositis, Good Pasture Syndrome, Graft Versus Host Disease, Graves' Disease, Guillain-Baπé, Hashimoto's Thyroiditis, Idiopathic Pulmonary Fibrosis, Idiopathic Thrombocytopenia Purpura (ITP), IgA Nephropathy, Insulin Dependent Diabetes, Juvenile Arthritis, Lichen Planus, Lupus , Ménière's Disease, Mixed Connective Tissue Disease, Multiple Sclerosis, Myasthenia Gravis, Myositis, Pemphigus Vulgaris, Pernicious Anemia, Polyarteritis Nodosa, Polychondritis, Polyglandular Syndromes, Polymyalgia Rheumatica, Polymyositis and Dermatomyositis, Primary Agammaglobulinemia, Primary Biliary Cirrhosis, Psoriasis, Raynaud's Phenomenon, Reiter's Syndrome, Rheumatic Fever, Rheumatoid Arthritis, Sarcoidosis, Scleroderma, Sjögren's Syndrome, Stiff-Man Syndrome, Takayasu Arteritis, Temporal Arteritis/GianT-cell Arteritis, Ulcerative Colitis, Uveitis. Vasculitis. Vitiligo. and Wegener's Granulomatosis.
- 18. (Original) The method according to claim 1, wherein said sterol absorption inhibitor disrupts lipid raft formation and/or organization within the cell membranes of leukocytes.
- 19. (Original) The method according to claim 18, wherein said lipid raft disruption affects the pathogenesis of said autoimmune disorder by affecting at least one immune response selected from the group consisting of antigen presentation, T-

cell activation, T-cell receptor signaling, adhesion molecule function, chemokine receptor signaling, and combinations thereof.

20. A method of treating or preventing an autoimmune (Original) disorder in a subject is provided, comprising the step of administering to a subject in need of such treatment an effective amount of at least one sterol absorption inhibitor represented by Formula (II) below:

(II)

or a pharmaceutically acceptable salt or solvate thereof; for the treatment of an autoimmune disorder in a subject.

21. The method according to claim 20, wherein the subject (Original) has an autoimmune disorder selected from the group consisting of: Alopecia Areata, Ankylosing Spondylitis, Antiphospholipid Syndrome, aplastic anemia. myelodysplastic syndromes, paroxysmal nocturnal hemoglobulinemia, pure red cell aplasia, chronic neutropenias, amegakaryocytic thrombocytopenia, antiphospholipid syndromes, autoimmune thrombocytopenia, autoimmune hemolytic syndromes, antiphospholipid syndromes, autoimmune gastritis, achlorhydria, Autoimmune Addison's Disease, Autoimmune Diabetes, Autoimmune Hemolytic Anemia, Autoimmune Hepatitis, Autoimmune hypophysitis, Autoimmune orchiditis, autoimmune ovarian failure. Behcet's Disease, **Bullous** Pemphigoid, Cardiomyopathy, Celiac Sprue-Dermatitis, Cicatrical pemphigoid, Chronic Fatigue Immune Dysfunction Syndrome (CFIDS), Chronic Inflammatory Demyelinating Polyneuropathy, Interstitial cystitis, Churg-Strauss Syndrome, Cicatricial Pemphigoid, CREST Syndrome, Cold Agglutinin Disease, Crohn's Disease,

Dermatitis herpetiformis, Discoid Lupus, Drug-induced autoimmune disorders, Endometriosis, Epidermolysis bullosa acquisita, Essential Mixed Cryoglobulinemia, Fibromyalgia-Fibromyositis, Glomerulonephritis, Good Pasture Syndrome, Graft Versus Host Disease, Graves' Disease, Guillain-Barré, Hashimoto's Thyroiditis, Idiopathic Inflammatory Myopathies, Idiopathic Pulmonary Fibrosis, Idiopathic Thrombocytopenia Purpura (ITP), IgA Nephropathy, Insulin Dependent Diabetes, Juvenile Arthritis, Lichen Planus, Systemic Lupus Erythmatosus, Ménière's Disease, Metal-induced autoimmunity disorders, Mixed Connective Tissue Disease, Multiple Sclerosis, Myasthenia Gravis, Myocarditis, Myositis, Optic neuritis. Painless/postpartum thyroiditis, Peripheral nerve vasculitis, Pemphigus Foliaceus, Pemphigus Vulgaris, Pernicious Anemia, Polyarteritis Nodosa, Polychondritis, Polyglandular Syndromes. Polymyalgia Rheumatica, **Polymyositis** and Dermatomyositis, Postinfectious autoimmune disorders, Primary Agammaglobulinemia, Primary Biliary Cirrhosis, Psoriasis, Psoriatic Arthritis, Reactive Arthritis, Raynaud's Phenomenon, Reiter's Syndrome, Rheumatic Fever, Rheumatoid Arthritis, Sarcoidosis, Scleritis, Scleroderma, Sjögren's Syndrome, Stiff-Man Syndrome, Takayasu Arteritis, Temporal Arteritis/Giant-cell Arteritis, Ulcerative Colitis, Uveitis, Vasculitis, Vitiligo, and Wegener's Granulomatosis.

- 22. (Original) The method according to claim 20, further comprising the step of administering to said subject at least one other agent useful for the treatment of an autoimmune disorder.
- 23. (Original) The method according to claim 22, wherein the subject has rheumatoid arthritis and wherein said other agent is selected from the group consisting of COX-2 inhibitors, COX inhibitors, immunosuppressives, steroids, PDE IV inhibitors, anti-TNF-α compounds, MMP inhibitors, glucocorticoids, chemokine inhibitors, CB2-selective inhibitors and combinations thereof.
- 24. (Currently Amended) A method of treating or preventing rheumatoid arthritis in a subject, comprising the step of administering to a subject in need of such treatment an effective amount of at least one sterol absorption inhibitor

or a pharmaceutically acceptable salt or solvate thereof, wherein the at least one sterol absorption inhibitor is selected from the group consisting of sterol absorption inhibitors represented by the following Formulae:

## (a) Formula (I):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$
 $Ar^{3}$ 
 $Ar^{2}$ 
(I)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

Ar<sup>1</sup> and Ar<sup>2</sup> are independently selected from the group consisting of aryl and R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is aryl or R<sup>5</sup>-substituted aryl;

X, Y and Z are independently selected from the group consisting of -CH2-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R and R<sup>2</sup> are independently selected from the group consisting of -OR<sup>6</sup>, -O(CO)OR<sup>9</sup> and -O(CO)NR<sup>6</sup>R<sup>7</sup>;

R<sup>1</sup> and R<sup>3</sup> are independently selected from the group consisting of hydrogen, lower alkyl and aryl;

q is 0 or 1;

r is 0 or 1;

m, n and p are independently selected from 0, 1, 2, 3 or 4; provided that at least one of q and r is 1, and the sum of m, n, p, q and r is 1, 2, 3, 4, 5 or 6; and provided that when p is 0 and r is 1, the sum of m, q and n is 1, 2, 3, 4 or 5;

 $R^4$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1.8}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6(CO)R^7$ 

-CONR<sup>6</sup>R<sup>7</sup>, -COR<sup>6</sup>, -SO<sub>2</sub>NR<sup>6</sup>R<sup>7</sup>, S(O)<sub>0-2</sub>R<sup>9</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>-COOR<sup>6</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>CONR<sup>6</sup>R<sup>7</sup>, -(lower alkylene)COOR<sup>6</sup>, -CH=CH-COOR<sup>6</sup>, -CF<sub>3</sub>, -CN, -NO<sub>2</sub> and halogen;

 $R^5$  is 1-5 substituents independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0-2}R^9$ ,  $-O(CH_2)_{1-10}$ - $-COOR^6$ ,  $-O(CH_2)_{1-10}CONR^6R^7$ ,  $-(Iower alkylene)COOR^6$  and  $-CH=CH-COOR^6$ ;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

## (b) Formula (III);

$$Ar^{1}$$
 $Ar^{1}$ 
 $Ar^{2}$ 
 $Ar^{3}$ 
 $Ar^{2}$ 

(III)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (III) above:

Ar<sup>1</sup> is R<sup>3</sup>-substituted aryl;

Ar<sup>2</sup> is R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is R<sup>5</sup>-substituted aryl;

Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

A is selected from -O-, -S-, -S(O)- or -S(O)<sub>a</sub>-:

 $R^{1}$  is selected from the group consisting of  $-OR^{6}$ ,  $-O(CO)R^{6}$ ,  $-O(CO)OR^{9}$  and  $-O(CO)NR^{6}R^{7}$ ;  $R^{2}$  is selected from the group consisting of hydrogen, lower alkyl and aryl; or  $R^{1}$  and  $R^{2}$  together are =O;

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q is 1, 2 or 3;

p is 0, 1, 2, 3 or 4:

R<sup>5</sup> is 1-3 substituents independently selected from the group consisting of  $-OR^{6}$ ,  $-O(CO)R^{6}$ ,  $-O(CO)OR^{9}$ ,  $-O(CH_{2})_{1.5}OR^{9}$ ,  $-O(CO)NR^{6}R^{7}$ ,  $-NR^{6}R^{7}$ ,  $-NR^{6}(CO)R^{7}$ , -NR<sup>6</sup>(CO)OR<sup>9</sup>, -NR<sup>6</sup>(CO)NR<sup>7</sup>R<sup>8</sup>, -NR<sup>6</sup>SO<sub>2</sub>-lower alkyl, -NR<sup>6</sup>SO<sub>2</sub>-aryl, -CONR<sup>6</sup>R<sup>7</sup>, - $COR^{6}$ ,  $-SO_{2}NR^{6}R^{7}$ ,  $S(O)_{0-2}$ -alkyl,  $S(O)_{0-2}$ -aryl,  $-O(CH_{2})_{1-10}$ - $COOR^{6}$ ,  $-O(CH_{2})_{1}$ 10CONR<sup>6</sup>R<sup>7</sup>, o-halogeno, m-halogeno, o-lower alkyl, m-lower alkyl, -(lower alkylene)-COOR<sup>6</sup>, and -CH=CH-COOR<sup>6</sup>:

R<sup>3</sup> and R<sup>4</sup> are independently 1-3 substituents independently selected from the group consisting of R<sup>5</sup>, hydrogen, p-lower alkyl, aryl, -NO<sub>2</sub>, -CF<sub>3</sub> and p-halogeno;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

#### (c) Formula (IV):

(V)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (IV) above:

A is selected from the group consisting of R<sup>2</sup>-substituted heterocycloalkyl, R<sup>2</sup>substituted heteroaryl, R<sup>2</sup>-substituted benzofused heterocycloalkyl, and R<sup>2</sup>substituted benzofused heteroaryl;

Ar<sup>1</sup> is arvl or R<sup>3</sup>-substituted arvl:

Ar<sup>2</sup> is arvl or R<sup>4</sup>-substituted arvl:

Q is a bond or, with the 3-position ring carbon of the azetidinone, forms the

R<sup>1</sup> is selected from the group consisting of:

 $-(CH_2)_q$ -, wherein q is 2-6, provided that when Q forms a spiro ring, q can also be zero or 1:

 $-(CH_2)_e$ -G- $(CH_2)_r$ -, wherein G is -O-, -C(O)-, phenylene, -NR<sup>8</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;

-(C2-C6 alkenylene)-; and

 $-(CH_2)_CV-(CH_2)_g$ -, wherein V is  $C_3-C_6$  cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6;

R<sup>5</sup> is selected from:

 $R^6$  and  $R^7$  are independently selected from the group consisting of  $-CH_{2^-}$ ,  $-CH(C_1-C_6$  alkyl)-,  $-C(di-(C_1-C_6)$  alkyl), -CH=CH- and  $-C(C_1-C_6$  alkyl)=CH-; or  $R^5$  together with an adjacent  $R^6$ , or  $R^5$  together with an adjacent  $R^7$ , form a -CH=CH- or a  $-CH=C(C_1-C_6$  alkyl)- group;

a and b are independently 0, 1, 2 or 3, provided both are not zero; provided that when  $R^6$  is -CH=CH- or -C( $C_1$ - $C_6$  alkyl)=CH-, a is 1; provided that when  $R^7$  is -CH=CH- or -C( $C_1$ - $C_6$  alkyl)=CH-, b is 1; provided that when a is 2 or 3, the  $R^6$ 's can be the same or different; and provided that when b is 2 or 3, the  $R^7$ 's can be the same or different:

and when Q is a bond, R<sup>1</sup> also can be selected from:

where M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are independently selected from the group consisting of  $-CH_{2^-}$ ,  $-CH(C_1-C_6$  alkyl)- and  $-C(di-(C_1-C_8)$  alkyl);

R<sup>10</sup> and R<sup>12</sup> are independently selected from the group consisting of -OR<sup>14</sup>, -O(CO)R<sup>14</sup>, -O(CO)OR<sup>16</sup> and -O(CO)NR<sup>14</sup>R<sup>15</sup>;

 $R^{11}$  and  $R^{13}$  are independently selected from the group consisting of hydrogen,  $(C_1-C_6)$  alkyl and aryl; or  $R^{10}$  and  $R^{11}$  together are =0, or  $R^{12}$  and  $R^{13}$  together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4; provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

 $R^2$  is 1-3 substituents on the ring carbon atoms selected from the group consisting of hydrogen,  $(C_1-C_{10})$ alkyl,  $(C_2-C_{10})$ alkenyl,  $(C_2-C_{10})$ alkynyl,

(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl, (C<sub>3</sub>-C<sub>6</sub>)cycloalkenyl, R<sup>17</sup>-substituted aryl, R<sup>17</sup>-substituted benzyl, R<sup>17</sup>-substituted benzyloxy, R<sup>17</sup>-substituted aryloxy, halogeno, -NR<sup>14</sup>R<sup>15</sup>,

NR<sup>14</sup>R<sup>15</sup>(C<sub>1</sub>-C<sub>6</sub> alkylene)-, NR<sup>14</sup>R<sup>15</sup>C(O)(C<sub>1</sub>-C<sub>6</sub> alkylene)-,-NHC(O)R<sup>16</sup>,

OH,  $C_1$ - $C_6$  alkoxy,  $-OC(O)R^{16}$ ,  $-COR^{14}$ , hydroxy( $C_1$ - $C_6$ )alkyl,  $(C_1$ - $C_6$ )alkoxy( $C_1$ - $C_6$ )alkyl,  $NO_2$ ,  $-S(O)_{0.2}R^{16}$ ,  $-SO_2NR^{14}R^{15}$  and  $-(C_1$ - $C_6$  alkylene)COOR<sup>14</sup>; when  $R^2$  is a

substituent on a heterocycloalkyl ring,  $R^2$  is as defined, or is =0 or and, where  $R^2$  is a substituent on a substitutable ring nitrogen, it is hydrogen,  $(C_1-C_6)$ alkyl, aryl,  $(C_1-C_6)$ alkoxy, aryloxy,  $(C_1-C_6)$ alkylcarbonyl, arylcarbonyl, hydroxy,  $(C_1-C_6)$ alkyl- $(C_1-C_6)$ alkyl-(

wherein J is -O-, -NH-, -NR<sup>18</sup>- or -CH<sub>2</sub>-;

 $R^3$  and  $R^4$  are independently selected from the group consisting of 1-3 substituents independently selected from the group consisting of  $(C_1-C_8)$ alkyl,  $-OR^{14}$ ,  $-O(CO)R^{14}$ ,  $-O(CO)OR^{16}$ ,  $-O(CH_2)_{1-5}OR^{14}$ ,  $-O(CO)NR^{14}R^{15}$ ,  $-NR^{14}R^{15}$ ,  $-NR^{14}(CO)R^{15}$ ,  $-NR^{14}(CO)OR^{16}$ ,  $-NR^{14}(CO)NR^{15}R^{19}$ ,  $-NR^{14}SO_2R^{16}$ ,  $-COOR^{14}$ ,  $-CONR^{14}R^{15}$ ,  $-COR^{14}$ ,  $-SO_2NR^{14}R^{15}$ ,  $S(O)_{0-2}R^{16}$ ,  $-O(CH_2)_{1-10}$ - $-COOR^{14}$ ,  $-O(CH_2)_{1-10}CONR^{14}R^{15}$ ,  $-(C_1-C_6)$  alkylene)- $-COOR^{14}$ ,  $-CH=CH-COOR^{14}$ ,  $-CF_3$ , -CN,  $-NO_2$  and halogen;

R<sup>8</sup> is hydrogen, (C<sub>1</sub>-C<sub>e</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>e</sub>)alkyl, -C(O)R<sup>14</sup> or -COOR<sup>14</sup>;

 $R^9$  and  $R^{17}$  are independently 1-3 groups independently selected from the group consisting of hydrogen,  $(C_1-C_8)$ alkyl,  $(C_1-C_8)$ alkoxy, -COOH,  $NO_2$ , -NR $^{14}$ R $^{15}$ , OH and halogeno;

 $R^{14}$  and  $R^{15}$  are independently selected from the group consisting of hydrogen,  $(C_1-C_6)$ alkyl, aryl and aryl-substituted  $(C_1-C_6)$ alkyl;

R<sup>16</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>17</sup>-substituted aryl;

R<sup>18</sup> is hydrogen or (C<sub>1</sub>-C<sub>6</sub>)alkyl; and

 $R^{19}$  is hydrogen, hydroxy or  $(C_1-C_6)$ alkoxy;

# (d) Formula (V):

$$Ar^{1} \times_{m} (C)_{q} \times_{N} S(O)_{r}$$

$$R^{1} \times_{N} Ar^{3}$$

**(V)** 

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or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (V) above:

Ar<sup>1</sup> is arvl. R<sup>10</sup>-substituted arvl or heteroarvl:

Ar2 is aryl or R4-substituted aryl;

Ar<sup>3</sup> is anyl or R<sup>5</sup>-substituted anyl;

X and Y are independently selected from the group consisting of -CH<sub>2</sub>-,

-CH(lower alkyl)- and -C(dilower alkyl)-;

R is -OR<sup>6</sup>, -O(CO)R<sup>6</sup>, -O(CO)OR<sup>9</sup> or -O(CO)NR<sup>6</sup>R<sup>7</sup>; R<sup>1</sup> is hydrogen, lower alkyl or aryl; or R and R together are =0;

g is 0 or 1;

r is 0, 1 or 2;

m and n are independently 0, 1, 2, 3, 4 or 5; provided that the sum of m, n and q is 1, 2, 3, 4 or 5;

R4 is 1-5 substituents independently selected from the group consisting of lower alkyl, -OR<sup>6</sup>, -O(CO)R<sup>6</sup>, -O(CO)OR<sup>9</sup>, -O(CH<sub>2</sub>)<sub>1-5</sub>OR<sup>6</sup>, -O(CO)NR<sup>6</sup>R<sup>7</sup>,

-NR<sup>6</sup>R<sup>7</sup>, -NR<sup>6</sup>(CO)R<sup>7</sup>, -NR<sup>6</sup>(CO)OR<sup>9</sup>, -NR<sup>6</sup>(CO)NR<sup>7</sup>R<sup>8</sup>, -NR<sup>6</sup>SO<sub>2</sub>R<sup>9</sup>, -COOR<sup>6</sup>,

-CONR<sup>6</sup>R<sup>7</sup>, -COR<sup>6</sup>, -SO<sub>2</sub>NR<sup>6</sup>R<sup>7</sup>, S(O)<sub>0.2</sub>R<sup>9</sup>, -O(CH<sub>2</sub>)<sub>1.10</sub>-COOR<sup>6</sup>.

-O(CH<sub>2</sub>)<sub>4.40</sub>CONR<sup>6</sup>R<sup>7</sup>, -(lower alkylene)COOR<sup>6</sup> and -CH=CH-COOR<sup>6</sup>;

R<sup>5</sup> is 1-5 substituents independently selected from the group consisting of  $-OR^{6}$ ,  $-O(CO)R^{6}$ ,  $-O(CO)OR^{9}$ ,  $-O(CH_{2})_{1.5}OR^{6}$ ,  $-O(CO)NR^{6}R^{7}$ ,  $-NR^{6}R^{7}$ ,  $-NR^{6}(CO)R^{7}$ ,  $-NR^{6}(CO)OR^{9}$ ,  $-NR^{6}(CO)NR^{7}R^{8}$ ,  $-NR^{6}SO_{2}R^{9}$ ,  $-COOR^{6}$ ,  $-CONR^{6}R^{7}$ ,  $-COR^{6}$ , -SO<sub>2</sub>NR<sup>6</sup>R<sup>7</sup>, S(O)<sub>0.2</sub>R<sup>9</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>-COOR<sup>6</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>CONR<sup>6</sup>R<sup>7</sup>, -CF<sub>3</sub>, -CN, -NO<sub>2</sub>, halogen.

-(lower alkylene)COOR<sup>6</sup> and -CH=CH-COOR<sup>6</sup>;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl;

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl; and

R<sup>10</sup> is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)$ ,  $_6OR^6$ ,  $-O(CO)NR^6R^7$ .

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$$-NR^{6}R^{7}, -NR^{6}(CO)R^{7}, -NR^{6}(CO)OR^{9}, -NR^{6}(CO)NR^{7}R^{8}, -NR^{6}SO_{2}R^{9}, -COOR^{6}, \\ -CONR^{6}R^{7}, -COR^{6}, -SO_{2}NR^{6}R^{7}, -S(O)_{0-2}R^{9}, -O(CH_{2})_{1-10}-COOR^{6}, \\ -O(CH_{2})_{1-10}CONR^{6}R^{7}, -CF_{3}, -CN, -NO_{2} \text{ and halogen;}$$

## (e) Formula (VI):

$$R_1$$
  $R_2$   $R_{20}$   $R_{21}$ 

(VI)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

R<sub>1</sub> is

-CH-, -C(lower alkyl)-, -CF-, -C(OH)-, -C(C<sub>6</sub>H<sub>5</sub>)-, -C(C<sub>6</sub>H<sub>4</sub>-R<sub>15</sub>)-, -
$$\frac{1}{N}$$
 or - $\frac{1}{N}$  O :

R2 and R3 are independently selected from the group consisting of:
-CH2-, -CH(lower alkyl)-, -C(di-lower alkyl)-, -CH=CH- and -C(lower alkyl)=CH-; or
R1 together with an adjacent R2, or R1 together with an adjacent R3, form a
-CH=CH- or a -CH=C(lower alkyl)- group;

u and v are independently 0, 1, 2 or 3, provided both are not zero; provided that when R<sub>2</sub> is -CH=CH- or -C(lower alkyl)=CH-, v is 1; provided that when R<sub>3</sub> is -CH=CH- or -C(lower alkyl)=CH-, u is 1; provided that when v is 2 or 3, the R<sub>2</sub>'s can be the same or different; and provided that when u is 2 or 3, the R<sub>3</sub>'s can be the same or different;

R4 is selected from B-(CH<sub>2</sub>)<sub>m</sub>C(O)-, wherein m is 0, 1, 2, 3, 4 or 5; B-(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 0, 1, 2, 3, 4, 5 or 6;

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In Reply to Office Action of March 5, 2007
Attorney Docket No. CV06093US01

B-(CH<sub>2</sub>)<sub>e</sub>-Z-(CH<sub>2</sub>)<sub>r</sub>, wherein Z is -O-, -C(O)-, phenylene, -N(R<sub>8</sub>)- or -S(O)<sub>0-2</sub>-, e is 0, 1, 2, 3, 4 or 5 and r is 0, 1, 2, 3, 4 or 5, provided that the sum of e and r is 0, 1, 2, 3, 4, 5 or 6;

B-(C2-C6 alkenylene)-;

B-(C4-C6 alkadienylene)-;

B-(CH<sub>2</sub>)t-Z-(C<sub>2</sub>-C<sub>6</sub> alkenylene)-, wherein Z is as defined above, and wherein t is 0, 1, 2 or 3, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>) $_f$ -V-(CH<sub>2</sub>) $_g$ -, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1, 2, 3, 4 or 5 and g is 0, 1, 2, 3, 4 or 5, provided that the sum of f and g is 1, 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)t-V-(C<sub>2</sub>-C<sub>6</sub> alkenylene)- or

B-(C2-C6 alkenylene)-V-(CH2)t-, wherein V and t are as defined above, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>a</sub>-Z-(CH<sub>2</sub>)<sub>b</sub>-V-(CH<sub>2</sub>)<sub>d</sub>-, wherein Z and V are as defined above and a, b and d are independently 0, 1, 2, 3, 4, 5 or 6, provided that the sum of a, b and d is 0, 1, 2, 3, 4, 5 or 6; or T-(CH<sub>2</sub>)<sub>S</sub>-, wherein T is cycloalkyl of 3-6 carbon atoms and s is 0, 1, 2, 3, 4, 5 or 6; or

R1 and R4 together form the group B-CH=C-;

B is selected from indanyl, Indenyl, naphthyl, tetrahydronaphthyl, heteroaryl or W-substituted heteroaryl, wherein heteroaryl is selected from the group consisting of pyrrolyl, pyridinyl, pyrimidinyl, pyrazinyl, triazinyl, imidazolyl, thiazolyl, pyrazolyl, thienyl, oxazolyl and furanyl, and for nitrogen-containing heteroaryls, the N-oxides thereof, or

W is 1 to 3 substituents independently selected from the group consisting of lower alkyl, hydroxy lower alkyl, lower alkoxy, alkoxyalkyl, alkoxyalkoxy,

alkoxycarbonylalkoxy, (lower alkoxyimino)-lower alkyl, lower alkanedioyl, lower alkyl lower alkanedioyl, allyloxy, -CF3, -OCF3, benzyl, R7-benzyl, benzyloxy,

R7-benzyloxy, phenoxy, R7-phenoxy, dioxolanyl, NO<sub>2</sub>,-N(R8)(R9), N(R8)(R9)-lower alkylene-, N(R8)(R9)-lower alkylenyloxy-, OH, halogeno, -CN, -N3, -NHC(O)OR<sub>10</sub>, -NHC(O)R<sub>10</sub>, -R<sub>11</sub>O<sub>2</sub>SNH<sub>2</sub>, -(P<sub>11</sub>O<sub>2</sub>S)NH<sub>3</sub>, -S(O)<sub>2</sub>NH<sub>2</sub>, -S(O)<sub>2</sub>NH<sub>3</sub>, -S(O)<sub>4</sub>NH<sub>3</sub>, -S

-NHC(O)R10, R11O2SNH-, (R11O2S)2N-, -S(O)2NH2, -S(O)0-2R8, tert-butyldimethyl-silyloxymethyl, -C(O)R12, -COOR19, -CON(R8)(R9), -CH=CHC(O)R12, -lower alkylene-C(O)R12, R10C(O)(lower alkylenyloxy)-,

 $N(R_8)(R_9)C(O)$  (lower alkylenyloxy)- and  $R_{13}$  for substitution on ring carbon atoms,

and the substituents on the substituted heteroaryl ring nitrogen atoms, when present, are selected from the group consisting of lower alkyl, lower alkoxy, -C(O)OR<sub>10</sub>, -C(O)R<sub>10</sub>, OH, N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylene-,N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylenyloxy-, -S(O)<sub>2</sub>NH<sub>2</sub> and 2-(trimethylsilyl)-ethoxymethyl;

R7 is 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, -COOH, NO2, -N(R8)(R9), OH, and halogeno;

R8 and R9 are independently selected from H or lower alkyl;

R<sub>10</sub> is selected from lower alkyl, phenyl, R<sub>7</sub>-phenyl, benzyl or R<sub>7</sub>-benzyl;

R<sub>11</sub> is selected from OH, lower alkyl, phenyl, benzyl, R<sub>7</sub>-phenyl or R<sub>7</sub>-benzyl; R<sub>12</sub> is selected from H, OH, alkoxy, phenoxy, benzyloxy,

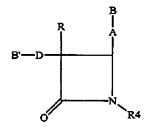
R<sub>13</sub> is selected from -O-, -CH<sub>2</sub>-, -NH-, -N(lower alkyl)- or -NC(O)R<sub>19</sub>;

R15, R16 and R17 are independently selected from the group consisting of H and the groups defined for W; or R15 is hydrogen and R16 and R17, together with adjacent carbon atoms to which they are attached, form a dioxolanyl ring;

R19 is H, lower alkyl, phenyl or phenyl lower alkyl; and R20 and R21 are independently selected from the group consisting of phenyl, W-substituted phenyl, naphthyl, w-substituted naphthyl, indanyl, indenyl,

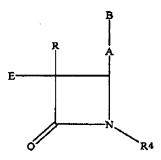
tetrahydronaphthyl, benzodioxolyl, heteroaryl, W-substituted heteroaryl, benzofused heteroaryl, W-substituted benzofused heteroaryl and cyclopropyl, wherein heteroaryl is as defined above;

# (f) Formula (VIIA) or (VIIB):



(VIIA)

or



(VIIB)

or a pharmaceutically acceptable salt or solvate thereof, wherein:

A is -CH=CH-, -C=C- or -(CH2)p- wherein p is 0, 1 or 2;

B is

B' is

D is -(CH<sub>2</sub>)<sub>m</sub>C(O)- or -(CH<sub>2</sub>)<sub>q</sub>- wherein m is 1, 2, 3 or 4 and q is 2, 3 or 4;

E is C<sub>10</sub> to C<sub>20</sub> alkyl or -C(O)-(C<sub>9</sub> to C<sub>19</sub>)-alkyl, wherein the alkyl is straight or branched, saturated or containing one or more double bonds:

R is hydrogen, C<sub>1</sub>-C<sub>15</sub> alkyl, straight or branched, saturated or containing one or more double bonds, or B-(CH<sub>2</sub>)<sub>r</sub>-, wherein r is 0, 1, 2, or 3;

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>1</sub>, R<sub>2</sub>, and R<sub>3</sub> are independently selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, carboxy, NO<sub>2</sub>, NH<sub>2</sub>, OH, halogeno, lower alkylamino, dilower alkylamino, -NHC(O)OR<sub>5</sub>, R<sub>6</sub>O<sub>2</sub>SNH- and -S(O)<sub>2</sub>NH<sub>2</sub>;

R<sub>4</sub> is

wherein n is 0, 1, 2 or 3; ...

R5 is lower alkyl; and

R6 is OH, lower alkyl, phenyl, benzyl or substituted phenyl wherein the substituents are 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, carboxy, NO<sub>2</sub>, NH<sub>2</sub>, OH, halogeno, lower alkylamino and dilower alkylamino;

#### (g) Formula (VIII):

**(VIII)** 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (VIII) above,

R<sup>26</sup> is H or OG<sup>1</sup>:

G and G<sup>1</sup> are independently selected from the group consisting of

H, 
$$OR^5$$
  $OR^4$   $OR^5$   $OR^4$   $OR^7$   $OR^7$   $OR^7$   $OR^7$   $OR^7$   $OR^7$   $OR^8$   $OR^8$   $OR^8$   $OR^8$   $OR^8$   $OR^8$ 

and  $R^{4a}O$   $CH_2R^b$ ;

provided that when R<sup>26</sup> is H or

OH, G is not H;

R, R<sup>a</sup> and R<sup>b</sup> are independently selected from the group consisting of H, -OH, halogeno, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)-alkoxy or -W-R<sup>30</sup>;

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N(R $^{31}$ )-, -NH-C(O)-N(R $^{31}$ )- and -O-C(S)-N(R $^{31}$ )-;

R<sup>2</sup> and R<sup>6</sup> are independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl and aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl;

R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>3a</sup> and R<sup>4a</sup> are independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl and -C(O)aryl;

R<sup>30</sup> is selected from the group consisting of R<sup>32</sup>-substituted T, R<sup>32</sup>-substituted-T-(C<sub>1</sub>-C<sub>6</sub>)alkyl, R<sup>32</sup>-substituted-(C<sub>2</sub>-C<sub>4</sub>)alkenyl, R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl and R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl(C<sub>1</sub>-C<sub>6</sub>)alkyl;

R<sup>31</sup> is selected from the group consisting of H and (C<sub>1</sub>-C<sub>4</sub>)alkyl;

T is selected from the group consisting of phenyl, furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, thiazolyl, iosthiazolyl, benzothiazolyl, thiadiazolyl, pyrazolyl, imidazolyl and pyridyl;

R<sup>32</sup> is independently selected from 1-3 substituents independently selected from the group consisting of halogeno, (C<sub>1</sub>-C<sub>4</sub>)alkyl, -OH, phenoxy,

-CF3, -NO2, (C1-C4)alkoxy, methylenedioxy, oxo, (C1-C4)alkylsulfanyl.

(C1-C4)alkylsulfinyl, (C1-C4)alkylsulfonyl, -N(CH3)2, -C(O)-NH(C1-C4)alkyl,

-C(O)-N((C1-C4)alkyl)2,

-C(O)-(C1-C4)alkyl,

-C(O)-(C<sub>1</sub>-C<sub>4</sub>)alkoxy

and

pyrrolidinylcarbonyl; or R<sup>32</sup> is a covalent bond and R<sup>31</sup>, the nitrogen to which it is attached and R<sup>32</sup> form a pyrrolidinyl, piperidinyl, N-methyl-piperazinyl, indolinyl or morpholinyl group, or a (C<sub>1</sub>-C<sub>4</sub>)alkoxycarbonyl-substituted pyrrolidinyl, piperidinyl, N-methylpiperazinyl, indolinyl or morpholinyl group;

Ar<sup>1</sup> is aryl or R<sup>10</sup>-substituted aryl;

Ar<sup>2</sup> is aryl or R<sup>11</sup>-substituted aryl;

Q is a bond or, with the 3-position ring carbon of the azetidinone,

 $R^{12}$ — $(R^{13})_a$  forms the spiro group  $(R^{14})_b$ —; and

R<sup>1</sup> is selected from the group consisting of

-(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 2-6, provided that when Q forms a spiro ring, q can also be zero or 1;

-(CH<sub>2</sub>)<sub>e</sub>-E-(CH<sub>2</sub>)<sub>r</sub>-, wherein E is -O-, -C(O)-, phenylene, -NR<sup>22</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;

-(C2-C6)alkenylene-; and

-(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6;

R12 is

$$-\overset{1}{C}H_{-}, -\overset{1}{C}(C_{1}-C_{6} \text{ alkyl})_{-}, -\overset{1}{C}F_{-}, -\overset{1}{C}(OH)_{-}, -\overset{1}{C}(C_{6}H_{4}-R^{23})_{-}, -\overset{1}{N_{-}}, \text{ or } -\overset{1}{N_{-}}O^{-};$$

R<sup>13</sup> and R<sup>14</sup> are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and

-C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-; or R<sup>12</sup> together with an adjacent R<sup>13</sup>, or R<sup>12</sup> together with an adjacent R<sup>14</sup>, form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>6</sub> alkyl)- group:

a and b are independently 0, 1, 2 or 3, provided both are not zero; provided that when R<sup>13</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, a is 1; provided that when R<sup>14</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, b is 1; provided that when a is 2 or 3, the R<sup>13</sup>'s can be the same or different; and provided that when b is 2 or 3, the R<sup>14</sup>'s can be the same or different; and when Q is a bond. R<sup>1</sup> also can be:

M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub>)alkyl- and -C(di-(C<sub>1</sub>-C<sub>6</sub>)alkyl);

 ${\sf R}^{\sf 10}$  and  ${\sf R}^{\sf 11}$  are independently selected from the group consisting of 1-3 substituents independently selected from the group consisting of

(C1-C6)alkyl, -OR<sup>19</sup>, -O(CO)R<sup>19</sup>, -O(CO)OR<sup>21</sup>, -O(CH<sub>2</sub>)<sub>1-5</sub>OR<sup>19</sup>,

-O(CO)NR<sup>19</sup>R<sup>20</sup>, -NR<sup>19</sup>R<sup>20</sup>, -NR<sup>19</sup>(CO)R<sup>20</sup>, -NR<sup>19</sup>(CO)OR<sup>21</sup>,

-NR<sup>19</sup>(CO)NR<sup>20</sup>R<sup>25</sup>, -NR<sup>19</sup>SO<sub>2</sub>R<sup>21</sup>, -COOR<sup>19</sup>, -CONR<sup>19</sup>R<sup>20</sup>, -COR<sup>19</sup>,

 $-\mathsf{SO}_2\mathsf{NR}^{19}\mathsf{R}^{20}, \ \ \mathsf{S}(\mathsf{O})_{0\text{-}2}\mathsf{R}^{21}, \ \ -\mathsf{O}(\mathsf{CH}_2)_{1\text{-}10}-\mathsf{COOR}^{19}, \ \ -\mathsf{O}(\mathsf{CH}_2)_{1\text{-}10}\mathsf{CONR}^{19}\mathsf{R}^{20},$ 

-(C1-C6 alkylene)-COOR<sup>19</sup>, -CH=CH-COOR<sup>19</sup>, -CF3, -CN, -NO<sub>2</sub> and halogen;

 $\rm R^{15}$  and  $\rm R^{17}$  are independently selected from the group consisting of -OR19, -O(CO)R19, -O(CO)OR21 and -O(CO)NR19R20;

R<sup>16</sup> and R<sup>18</sup> are independently selected from the group consisting of H, (C1-C6)alkyl and aryl; or R<sup>15</sup> and R<sup>16</sup> together are =0, or R<sup>17</sup> and R<sup>18</sup> together are =0;

d is 1, 2 or 3; h is 0, 1, 2, 3 or 4;

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s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4;
provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6;
provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and
provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1:

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

and when Q is a bond and  $R^1$  is  $\dot{R}^{16}$ ,  $Ar^1$  can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

R<sup>19</sup> and R<sup>20</sup> are independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl-substituted (C1-C6)alkyl;

R<sup>21</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>24</sup>-substituted aryl;

R<sup>22</sup> is H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>19</sup> or -COOR<sup>19</sup>:

R<sup>23</sup> and R<sup>24</sup> are independently 1-3 groups independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>1</sub>-C<sub>6</sub>)alkoxy, -COOH, NO<sub>2</sub>,

-NR<sup>19</sup>R<sup>20</sup>, -OH and halogeno; and

R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy; and

## (h) Formula (IX):

$$Ar^1$$
 $L$ 
 $R^8$ 
 $R^8$ 
 $R^2$ 
 $R^2$ 
 $R^2$ 
 $R^2$ 
 $R^2$ 
 $R^2$ 

or a pharmaceutically acceptable salt or solvate thereof, wherein in Formula (IX):

R<sup>1</sup> is selected from the group consisting of H, G, G<sup>1</sup>, G<sup>2</sup>, -SO<sub>3</sub>H and -PO<sub>3</sub>H;

G is selected from the group consisting of: H,

$$R^{5}O$$
  $OR^{4}$   $R^{5}O$   $OR^{4}$   $OR^{7}$   $OR^{7}$   $OR^{7}$   $OR^{5}$   $OR^{3}$   $OR^{4}$   $OR^{5}$   $OR^{3}$   $OR^{4}$   $OR^{3}$   $OR^{4}$   $OR^{3}$   $OR^{4}$   $OR^{5}$   $O$ 

wherein R, Ra and Rb are each independently selected from the group consisting of H, -OH, halo, -NH2, azido, (C1-C6)alkoxy(C1-C6)alkoxy or -W-R30;

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N(R $^{31}$ )-, -NH-C(O)-N(R $^{31}$ )- and -O-C(S)-N(R $^{31}$ )-;

R<sup>2</sup> and R<sup>6</sup> are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, acetyl, aryl and aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl;

 $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^7$ ,  $R^{3a}$  and  $R^{4a}$  are each independently selected from the group consisting of H, (C1-C6)alkyl, acetyl, aryl(C1-C6)alkyl, -C(O)(C1-C6)alkyl and -C(O)aryl;

 $R^{30}$  is independently selected from the group consisting of  $R^{32}$ -substituted T,  $R^{32}$ -substituted-T-(C1-C6)alkyl,  $R^{32}$ -substituted-(C2-C4)alkenyl,

R<sup>32</sup>-substituted-(C<sub>1</sub>-C<sub>6</sub>)alkyl, R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl and R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl(C<sub>1</sub>-C<sub>6</sub>)alkyl;

 $\mathsf{R}^{31}$  is independently selected from the group consisting of H and (C1-C4)alkyl;

T is independently selected from the group consisting of phenyl, furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, benzothiazolyl, thiadiazolyl, pyrazolyl, imidazolyl and pyridyl;

R<sup>32</sup> is independently selected from 1-3 substituents which are each independently selected from the group consisting of H, halo, (C<sub>1</sub>-C<sub>4</sub>)alkyl, -OH, phenoxy, -CF<sub>3</sub>, -NO<sub>2</sub>, (C<sub>1</sub>-C<sub>4</sub>)alkoxy, methylenedioxy, oxo, (C<sub>1</sub>-C<sub>4</sub>)alkylsulfanyl, (C<sub>1</sub>-C<sub>4</sub>)alkylsulfinyl, (C<sub>1</sub>-C<sub>4</sub>)alkylsulfonyl, -N(CH<sub>3</sub>)<sub>2</sub>, -C(O)-NH(C<sub>1</sub>-C<sub>4</sub>)alkyl, -C(O)-N((C<sub>1</sub>-C<sub>4</sub>)alkyl)<sub>2</sub>, -C(O)-(C<sub>1</sub>-C<sub>4</sub>)alkyl, -C(O)-(C<sub>1</sub>-C<sub>4</sub>)alkoxy and pyrrolidinylcarbonyl; or R<sup>32</sup> is a covalent bond and R<sup>31</sup>, the nitrogen to which it is attached and R<sup>32</sup> form a pyrrolidinyl, piperidinyl, N-methyl-piperazinyl, indolinyl or morpholinyl group, or a (C<sub>1</sub>-C<sub>4</sub>)alkoxycarbonyl-substituted pyrrolidinyl, piperidinyl, N-methylpiperazinyl, indolinyl or morpholinyl group;

G<sup>1</sup> is represented by the structure:

wherein  $R^{33}$  is independently selected from the group consisting of unsubstituted alkyl,  $R^{34}$ -substituted alkyl,  $(R^{35})(R^{36})$ alkyl-,

 $R^{34}$  is one to three substituents, each  $R^{34}$  being independently selected from the group consisting of HOOC-, HO-, HS-, (CH<sub>3</sub>)S-, H<sub>2</sub>N-, (NH<sub>2</sub>)(NH)C(NH)-, (NH<sub>2</sub>)C(O)- and HOOCCH(NH<sub>2</sub><sup>+</sup>)CH<sub>2</sub>SS-;

R<sup>35</sup> is independently selected from the group consisting of H and NH<sub>2</sub>-;

R<sup>36</sup> is independently selected from the group consisting of H, unsubstituted alkyl, R<sup>34</sup>-substituted alkyl, unsubstituted cycloalkyl and R<sup>34</sup>-substituted cycloalkyl;

G<sup>2</sup> is represented by the structure:

wherein  $R^{37}$  and  $R^{38}$  are each independently selected from the group consisting of  $(C_1-C_6)$ alkyl and aryl;

 $\mathsf{R}^{26}$  is one to five substituents, each  $\mathsf{R}^{26}$  being independently selected from the group consisting of:

- . a) H;
  - b) -OH;
- c) -OCH<sub>3</sub>;
- d) fluorine;
- e) chlorine;
- f) -O-G:
- g) -O-G<sup>1</sup>;
- h) -O-G<sup>2</sup>;
- i) -SO<sub>3</sub>H; and

provided that when R1 is H, R28 is not H, -OH, -OCH3 or -O-G;

Ar<sup>1</sup> is aryl, R<sup>10</sup>-substituted aryl, heteroaryl or R<sup>10</sup>-substituted heteroaryl;

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In Reply to Office Action of March 5, 2007
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Ar<sup>2</sup> is aryl, R<sup>11</sup>-substituted aryl, heteroaryl or R<sup>11</sup>-substituted heteroaryl;

L is selected from the group consisting of:

- a) a covalent bond;
- b)  $-(CH_2)_{a-}$ , wherein a is 1-6:
- c) -(CH<sub>2</sub>)<sub>e</sub>-E-(CH<sub>2</sub>)<sub>r</sub>, wherein E is -O-, -C(O)-, phenylene, -NR<sup>22</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;
- d) -(C<sub>2</sub>-C<sub>6</sub>)alkenylene-;
- e) -(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub>cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6; and

f)

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wherein M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are each independently selected from the group consisting of  $-CH_2$ -,  $-CH(C_1-C_6)$ alkyl- and  $-C(di-(C_1-C_6)$ alkyl)-;

R<sup>8</sup> is selected from the group consisting of H and alkyl;

 $R^{10}$  and  $R^{11}$  are each independently selected from the group consisting of 1-3 substituents which are each independently selected from the group consisting of (C1-C6)alkyl,  $-OR^{19}$ ,  $-O(CO)R^{19}$ ,  $-O(CO)OR^{21}$ ,  $-O(CH_2)_{1-5}OR^{19}$ ,  $-O(CO)NR^{19}R^{20}$ ,  $-NR^{19}R^{20}$ ,  $-NR^{19}(CO)R^{20}$ ,  $-NR^{19}(CO)OR^{21}$ ,  $-OR^{19}(CO)R^{20}$ ,  $-OR^{19}$ ,  $-O(CH_2)_{1-10}CONR^{19}$ 

R<sup>15</sup> and R<sup>17</sup> are each independently selected from the group consisting of -OR<sup>19</sup>, -OC(O)R<sup>19</sup>, -OC(O)OR<sup>21</sup>, - OC(O)NR<sup>19</sup>R<sup>20</sup>;

 $R^{16}$  and  $R^{18}$  are each independently selected from the group consisting of H,  $(C_1-C_6)$  alkyl and aryl;

or R<sup>15</sup> and R<sup>16</sup> together are =O, or R<sup>17</sup> and R<sup>18</sup> together are =O;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1;

t is 0 or 1;

m, n and p are each independently selected from 0-4;

provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, n and p is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1:

j and k are each independently 1-5, provided that the sum of j, k and v is 1-5;

Q is a bond, -(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 1-6, or, with the 3-position ring carbon of the azetidinone, forms the spiro group

$$R^{12}$$
  $(R^{13})_a$   $(R^{14})_b$ 

wherein R12 is

 ${\sf R}^{13}$  and  ${\sf R}^{14}$  are each independently selected from the group consisting of

-CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-; or  $R^{12}$  together with an adjacent  $R^{13}$ , or  $R^{12}$  together with an adjacent  $R^{14}$ , form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>6</sub> alkyl)- group;

a and b are each independently 0, 1, 2 or 3, provided both are not zero; provided that when  $R^{13}$  is -CH=CH- or -C(C1-C6 alkyl)=CH-, a is 1; provided that when  $R^{14}$  is -CH=CH- or -C(C1-C6 alkyl)=CH-, b is 1; provided that when a is 2 or 3, the  $R^{13}$ 's can be the same or different; and provided that when b is 2 or 3, the  $R^{14}$ 's can be the same or different;

and when Q is a bond and L is

then Ar<sup>1</sup> can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

 $R^{19}$  and  $R^{20}$  are each independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl-substituted (C1-C6)alkyl;

R<sup>21</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>24</sup>-substituted aryl;

R<sup>22</sup> is H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>19</sup> or -COOR<sup>19</sup>;

R<sup>23</sup> and R<sup>24</sup> are each independently selected from the group consisting of 1-3 substituents which are each independently selected from the group consisting of H, (C1-C6)alkyl, (C1-C6)alkoxy, -COOH, NO<sub>2</sub>, -NR<sup>19</sup>R<sup>20</sup>, -OH and halo; and

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R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy;

for the treatment of an autoimmune disorder in a subject.

25. (Currently Amended) A composition comprising: (a) at least one sterol absorption inhibitor or a pharmaceutically acceptable salt or solvate thereof and (b) at least one other agent useful for the treatment of an autoimmune disorder, wherein the at least one sterol absorption inhibitor is selected from the group consisting of sterol absorption inhibitors represented by the following Formulae:

# (a) Formula (I):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$
 $Ar^{3}$ 
 $Ar^{2}$ 
 $Ar^{2}$ 
(I)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

Ar<sup>1</sup> and Ar<sup>2</sup> are independently selected from the group consisting of aryl and R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is anyl or R<sup>5</sup>-substituted anyl;

X, Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R and  $R^2$  are independently selected from the group consisting of -OR<sup>6</sup>, -O(CO)R<sup>6</sup>, -O(CO)OR<sup>8</sup> and -O(CO)NR<sup>6</sup>R<sup>7</sup>;

R<sup>1</sup> and R<sup>3</sup> are independently selected from the group consisting of hydrogen, lower alkyl and aryl;

q is 0 or 1;

r is 0 or 1;

m, n and p are independently selected from 0, 1, 2, 3 or 4; provided that at least one of q and r is 1, and the sum of m, n, p, q and r is 1, 2, 3, 4, 5 or 6; and provided that when p is 0 and r is 1, the sum of m, q and n is 1, 2, 3, 4 or 5;

 $R^4$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0-2}R^9$ ,  $-O(CH_2)_{1-10}$ - $COOR^6$ ,  $-O(CH_2)_{1-10}CONR^6R^7$ ,  $-(Iower alkylene)COOR^6$ ,  $-CH=CH-COOR^6$ ,  $-CF_3$ , -CN,  $-NO_2$  and halogen;

 $R^5$  is 1-5 substituents independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0-2}R^9$ ,  $-O(CH_2)_{1-10}-COOR^6$ ,  $-O(CH_2)_{1-10}CONR^6R^7$ ,  $-(Iower alkylene)COOR^6$  and  $-CH=CH-COOR^6$ ;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

### (b) Formula (III):

$$Ar^{1}-A-Y = \begin{matrix} R^{1} \\ C \\ -Z_{p} \end{matrix} \qquad Ar^{3}$$

$$R^{2} \qquad N \qquad Ar^{2}$$

**(III)** 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (III) above:

Ar<sup>1</sup> is R<sup>3</sup>-substituted aryl; Ar<sup>2</sup> is R<sup>4</sup>-substituted aryl; Ar<sup>3</sup> is R<sup>5</sup>-substituted aryl;

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Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

A is selected from -O-, -S-, -S(O)- or -S(O)2-;

 $R^{1}$  is selected from the group consisting of  $-OR^{6}$ ,  $-O(CO)R^{6}$ ,  $-O(CO)OR^{9}$  and  $-O(CO)NR^{6}R^{7}$ ;  $R^{2}$  is selected from the group consisting of hydrogen, lower alkyl and aryl; or  $R^{1}$  and  $R^{2}$  together are =O;

q is 1, 2 or 3;

p is 0, 1, 2, 3 or 4;

 $R^5$  is 1-3 substituents independently selected from the group consisting of  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^9$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2$ -lower alkyl,  $-NR^6SO_2$ -aryl,  $-CONR^6R^7$ ,  $-CONR^6R^7$ , o-halogeno, m-halogeno, o-lower alkyl, m-lower alkyl, -(lower alkylene)- $-COOR^6$ , and  $-CH=CH-COOR^6$ :

R<sup>3</sup> and R<sup>4</sup> are independently 1-3 substituents independently selected from the group consisting of R<sup>5</sup>, hydrogen, p-lower alkyl, aryl, -NO<sub>2</sub>, -CF<sub>3</sub> and p-halogeno;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

#### (c) Formula (IV):

(IV)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (IV) above:

A is selected from the group consisting of R<sup>2</sup>-substituted heterocycloalkyl, R<sup>2</sup>-substituted heterocycloalkyl, R<sup>2</sup>-substituted benzofused heterocycloalkyl, and R<sup>2</sup>-substituted benzofused heterocycloalkyl;

Ar<sup>1</sup> is aryl or R<sup>3</sup>-substituted aryl;

Ar<sup>2</sup> is anyl or R<sup>4</sup>-substituted anyl;

Q is a bond or, with the 3-position ring carbon of the azetidinone, forms the

$$\begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \end{array} \\ \text{spiro group} \end{array} \stackrel{\left(R^{5}\right)_{a}}{(R^{7})_{b}} \end{array} ; \text{ and}$$

R<sup>1</sup> is selected from the group consisting of:

 $-(CH_2)_{q}$ , wherein q is 2-6, provided that when Q forms a spiro ring, q can also be zero or 1;

 $-(CH_2)_e$ -G- $(CH_2)_r$ -, wherein G is -O-, -C(O)-, phenylene, -NR<sup>8</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;

-(C2-C6 alkenylene)-; and

 $-(CH_2)_fV-(CH_2)_g$ -, wherein V is  $C_3-C_6$  cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6:

R<sup>5</sup> is selected from:

 $R^6$  and  $R^7$  are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and

-C(C<sub>1</sub>-C<sub>8</sub> alkyl)=CH-; or R<sup>5</sup> together with an adjacent R<sup>6</sup>, or R<sup>5</sup> together with an adjacent R<sup>7</sup>, form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>8</sub> alkyl)- group;

a and b are independently 0, 1, 2 or 3, provided both are not zero; provided that when  $R^6$  is -CH=CH- or -C( $C_1$ - $C_6$  alkyl)=CH-, a is 1; provided that when  $R^7$  is -CH=CH- or -C( $C_1$ - $C_6$  alkyl)=CH-, b is 1; provided that when a is 2 or 3, the  $R^6$ 's can be the same or different; and provided that when b is 2 or 3, the  $R^7$ 's can be the same or different;

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and when Q is a bond, R<sup>1</sup> also can be selected from:

where M is -O-, -S-, -S(O)- or -\$(O)2-;

X, Y and Z are independently selected from the group consisting of  $-CH_2$ -,  $-CH(C_1-C_6$  alkyl)- and  $-C(di-(C_1-C_6)$  alkyl);

R<sup>10</sup> and R<sup>12</sup> are independently selected from the group consisting of -QR<sup>14</sup>, -Q(CQ)R<sup>14</sup>, -Q(CQ)QR<sup>16</sup> and -Q(CQ)NR<sup>14</sup>R<sup>15</sup>;

R<sup>11</sup> and R<sup>13</sup> are independently selected from the group consisting of hydrogen, (C<sub>1</sub>-C<sub>8</sub>)alkyl and aryl; or R<sup>10</sup> and R<sup>11</sup> together are =0, or R<sup>12</sup> and R<sup>13</sup> together are =O;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4; provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

R<sup>2</sup> is 1-3 substituents on the ring carbon atoms selected from the group consisting of hydrogen,  $(C_1-C_{10})$ alkyl,  $(C_2-C_{10})$ alkenyl,  $(C_2-C_{10})$ alkynyl,

(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl, (C<sub>3</sub>-C<sub>6</sub>)cycloalkenyl, R<sup>17</sup>-substituted arvl, R<sup>17</sup>-substituted benzyl, R<sup>17</sup>-substituted benzyloxy, R<sup>17</sup>-substituted aryloxy, halogeno, -NR<sup>14</sup>R<sup>15</sup>,

NR<sup>14</sup>R<sup>15</sup>(C<sub>1</sub>-C<sub>6</sub> alkylene)-, NR<sup>14</sup>R<sup>15</sup>C(O)(C<sub>1</sub>-C<sub>6</sub> alkylene)-,-NHC(O)R<sup>16</sup>,

OH,  $C_1$ - $C_8$  alkoxy, -OC(O)R<sup>16</sup>, -COR<sup>14</sup>, hydroxy( $C_1$ - $C_8$ )alkyl, ( $C_1$ - $C_8$ )alkoxy( $C_1$ - $C_6$ )alkyl,  $NO_2$ ,  $-S(O)_{0.2}R^{16}$ ,  $-SO_2NR^{14}R^{15}$  and  $-(C_1-C_6)$  alkylene) $COOR^{14}$ ; when  $R^2$  is a

substituent on a heterocycloalkyl ring,  $R^2$  is as defined, or is =0 or  $O^{(CH_2)_{1-2}}$ ; and, where  $R^2$  is a substituent on a substitutable ring nitrogen, it is hydrogen,  $(C_1-C_6)$ alkyl, aryl,  $(C_1-C_6)$ alkoxy, aryloxy,  $(C_1-C_6)$ alkylcarbonyl, arylcarbonyl, hydroxy,  $-(CH_2)_{1-6}CONR^{18}R^{18}$ ,

wherein J is -O-, -NH-, -NR<sup>18</sup>- or -CH<sub>2</sub>-;

 $R^{3} \text{ and } R^{4} \text{ are independently selected from the group consisting of } 1-3 \text{ substituents independently selected from the group consisting of } (C_{1}-C_{6})\text{alkyl}, \\ -OR^{14}, -O(CO)R^{14}, -O(CO)OR^{16}, -O(CH_{2})_{1-5}OR^{14}, -O(CO)NR^{14}R^{15}, -NR^{14}R^{15}, \\ -NR^{14}(CO)R^{15}, -NR^{14}(CO)OR^{16}, -NR^{14}(CO)NR^{15}R^{19}, -NR^{14}SO_{2}R^{16}, -COOR^{14}, \\ -CONR^{14}R^{15}, -COR^{14}, -SO_{2}NR^{14}R^{15}, S(O)_{0-2}R^{16}, -O(CH_{2})_{1-10}-COOR^{14}, \\ -O(CH_{2})_{1-10}CONR^{14}R^{15}, -(C_{1}-C_{6} \text{ alkylene})-COOR^{14}, -CH=CH-COOR^{14}, -CF_{3}, -CN, -NO_{2} \text{ and halogen;}$ 

R<sup>8</sup> is hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>14</sup> or -COOR<sup>14</sup>;

 $\text{R}^9$  and  $\text{R}^{17}$  are independently 1-3 groups independently selected from the group consisting of hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>1</sub>-C<sub>6</sub>)alkoxy, -COOH, NO<sub>2</sub>, -NR<sup>14</sup>R<sup>15</sup>, OH and halogeno;

 $R^{14}$  and  $R^{15}$  are independently selected from the group consisting of hydrogen,  $(C_1-C_6)$ alkyl, anyl and anyl-substituted  $(C_1-C_6)$ alkyl;

R<sup>16</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>17</sup>-substituted aryl;

R<sup>18</sup> is hydrogen or (C<sub>1</sub>-C<sub>6</sub>)alkyl; and

R<sup>19</sup> is hydrogen, hydroxy or (C<sub>1</sub>-C<sub>6</sub>)alkoxy;

(d) Formula (V):

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$$Ar^{1}$$
 $X_{m}$ 
 $R^{1}$ 
 $R^{1}$ 
 $R^{1}$ 
 $R^{1}$ 
 $R^{1}$ 
 $R^{2}$ 
 $R^{1}$ 
 $R^{2}$ 

**(V)** 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (V) above:

Ar<sup>1</sup> is aryl, R<sup>10</sup>-substituted aryl or heteroaryl;

Ar<sup>2</sup> is anyl or R<sup>4</sup>-substituted anyl;

Ar<sup>3</sup> is aryl or R<sup>5</sup>-substituted aryl;

X and Y are Independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R is  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^8$  or  $-O(CO)NR^6R^7$ ; R<sup>1</sup> is hydrogen, lower alkyl or aryl; or R and R<sup>1</sup> together are =0;

q is 0 or 1;

r is 0, 1 or 2;

m and n are independently 0, 1, 2, 3, 4 or 5; provided that the sum of m, n and q is 1, 2, 3, 4 or 5;

 $R^4$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,

-NR<sup>6</sup>R<sup>7</sup>, -NR<sup>6</sup>(CO)R<sup>7</sup>, -NR<sup>6</sup>(CO)OR<sup>9</sup>, -NR<sup>6</sup>(CO)NR<sup>7</sup>R<sup>8</sup>, -NR<sup>6</sup>SO<sub>2</sub>R<sup>9</sup>, -COOR<sup>6</sup>,

-CONR<sup>6</sup>R<sup>7</sup>, -COR<sup>6</sup>, -SO<sub>2</sub>NR<sup>6</sup>R<sup>7</sup>, S(O)<sub>0-2</sub>R<sup>9</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>-COOR<sup>6</sup>,

-O(CH<sub>2</sub>)<sub>1-10</sub>CONR<sup>6</sup>R<sup>7</sup>, -(lower alkylene)COOR<sup>6</sup> and -CH=CH-COOR<sup>6</sup>;

 $R^5$  is 1-5 substituents independently selected from the group consisting of  $-\mathsf{OR}^6$ ,  $-\mathsf{O}(\mathsf{CO})\mathsf{R}^6$ ,  $-\mathsf{O}(\mathsf{CO})\mathsf{OR}^9$ ,  $-\mathsf{O}(\mathsf{CH}_2)_{1-5}\mathsf{OR}^6$ ,  $-\mathsf{O}(\mathsf{CO})\mathsf{NR}^6\mathsf{R}^7$ ,  $-\mathsf{NR}^6\mathsf{R}^7$ ,  $-\mathsf{NR}^6(\mathsf{CO})\mathsf{R}^7$ ,  $-\mathsf{NR}^6(\mathsf{CO})\mathsf{OR}^9$ ,  $-\mathsf{NR}^6(\mathsf{CO})\mathsf{NR}^7\mathsf{R}^8$ ,  $-\mathsf{NR}^6\mathsf{SO}_2\mathsf{R}^9$ ,  $-\mathsf{COOR}^6$ ,  $-\mathsf{CONR}^6\mathsf{R}^7$ ,  $-\mathsf{COR}^6$ ,  $-\mathsf{SO}_2\mathsf{NR}^6\mathsf{R}^7$ ,  $\mathsf{S}(\mathsf{O})_{0-2}\mathsf{R}^9$ ,  $-\mathsf{O}(\mathsf{CH}_2)_{1-10}\text{-}\mathsf{COOR}^6$ ,  $-\mathsf{O}(\mathsf{CH}_2)_{1-10}\mathsf{CONR}^6\mathsf{R}^7$ ,  $-\mathsf{CF}_3$ ,  $-\mathsf{CN}$ ,  $-\mathsf{NO}_2$ , halogen,

-(lower alkylene)COOR<sup>6</sup> and -CH=CH-COOR<sup>6</sup>;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl;

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl; and

 $R^{10}$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,

-NR<sup>6</sup>R<sup>7</sup>, -NR<sup>6</sup>(CO)R<sup>7</sup>, -NR<sup>6</sup>(CO)OR<sup>9</sup>, -NR<sup>6</sup>(CO)NR<sup>7</sup>R<sup>8</sup>, -NR<sup>6</sup>SO<sub>2</sub>R<sup>9</sup>, -COOR<sup>6</sup>,

 $-\mathsf{CONR}^6\mathsf{R}^7,\,-\mathsf{COR}^6,\,-\mathsf{SO}_2\mathsf{NR}^6\mathsf{R}^7,\,-\mathsf{S(O)}_{0\text{-}2}\mathsf{R}^9,\,-\mathsf{O(CH}_2)_{1\text{-}10}\text{-}\mathsf{COOR}^6,$ 

-O(CH<sub>2</sub>)<sub>1-10</sub>CONR<sup>6</sup>R<sup>7</sup>, -CF<sub>3</sub>, -CN, -NO<sub>2</sub> and halogen;

# (e) Formula (VI):

$$R_{4}$$
 $R_{1}$ 
 $R_{20}$ 
 $R_{3}$ 
 $R_{21}$ 

**(VI)** 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

R<sub>1</sub> is

-CH-, -C(lower alkyl)-, -CF-, -C(OH)-, -C(C<sub>6</sub>H<sub>5</sub>)-, -C(C<sub>6</sub>H<sub>4</sub>-R<sub>15</sub>)-, - $\overset{!}{N}$ - or  $\overset{-}{-}\overset{!}{N}$ O ;

R2 and R3 are independently selected from the group consisting of:
-CH2-, -CH(lower alkyl)-, -C(di-lower alkyl)-, -CH=CH- and -C(lower alkyl)=CH-; or
R1 together with an adjacent R2, or R1 together with an adjacent R3, form a
-CH=CH- or a -CH=C(lower alkyl)- group;

u and v are independently 0, 1, 2 or 3, provided both are not zero; provided that when R<sub>2</sub> is -CH=CH- or -C(lower alkyl)=CH-, v is 1; provided that when R<sub>3</sub> is

-CH=CH- or -C(lower alkyl)=CH-, u is 1; provided that when v is 2 or 3, the R2's can be the same or different; and provided that when u is 2 or 3, the R3's can be the same or different;

R4 is selected from B-(CH2)mC(O)-, wherein m is 0, 1, 2, 3, 4 or 5;

B-(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 0, 1, 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>e</sub>-Z-(CH<sub>2</sub>)<sub>r</sub>, wherein Z is -O-, -C(O)-, phenylene, -N(R<sub>8</sub>)- or -S(O)<sub>0-2</sub>-, e is 0, 1, 2, 3, 4 or 5 and r is 0, 1, 2, 3, 4 or 5, provided that the sum of e and r is 0, 1, 2, 3, 4, 5 or 6;

B-(C2-C6 alkenylene)-;

B-(C4-C6 alkadienylene)-;

B- $(CH_2)_t$ -Z- $(C_2$ - $C_6$  alkenylene)-, wherein Z is as defined above, and wherein t is 0, 1, 2 or 3, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1, 2, 3, 4 or 5 and g is 0, 1, 2, 3, 4 or 5, provided that the sum of f and g is 1, 2, 3, 4, 5 or 6;

B-(CH2)t-V-(C2-C6 alkenylene)- or

B-(C<sub>2</sub>-C<sub>6</sub> alkenylene)-V-(CH<sub>2</sub>)<sub>t</sub>-, wherein V and t are as defined above, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>a</sub>-Z-(CH<sub>2</sub>)<sub>b</sub>-V-(CH<sub>2</sub>)<sub>d</sub>-, wherein Z and V are as defined above and a, b and d are independently 0, 1, 2, 3, 4, 5 or 6, provided that the sum of a, b and d is 0, 1, 2, 3, 4, 5 or 6; or T-(CH<sub>2</sub>)<sub>S</sub>-, wherein T is cycloalkyl of 3-6 carbon atoms and s is 0, 1, 2, 3, 4, 5 or 6; or

R1 and R4 together form the group B-CH=C-;

B is selected from indanyl, indenyl, naphthyl, tetrahydronaphthyl, heteroaryl or W-substituted heteroaryl, wherein heteroaryl is selected from the group consisting of pyrrolyl, pyridinyl, pyrimidinyl, pyrazinyl, triazinyl, imidazolyl, thiazolyl, pyrazolyl, thienyl, oxazolyl and furanyl, and for nitrogen-containing heteroaryls, the N-oxides thereof, or

W is 1 to 3 substituents independently selected from the group consisting of lower alkyl, hydroxy lower alkyl, lower alkoxy, alkoxyalkyl, alkoxyalkoxy, alkoxyarbonylalkoxy, (lower alkoxyimino)-lower alkyl, lower alkanedioyl, lower alkyl lower alkanedioyl, allyloxy, -CF3, -OCF3, benzyl, R7-benzyl, benzyloxy,

R7-benzyloxy, phenoxy, R7-phenoxy, dioxolanyl, NO2,-N(R8)(R9), N(R8)(R9)-lower alkylene-, N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylenyloxy-, OH, halogeno, -CN, -N<sub>3</sub>, -NHC(O)OR<sub>10</sub>, -NHC(O)R<sub>10</sub>, R1102\$NH-, (R1102S)2N-, -S(O)2NH2, -S(O)<sub>0-2</sub>R<sub>8</sub>, butyldimethyl-silyloxymethyl, -C(O)R<sub>12</sub>, -COOR19. -CON(R8)(R9),  $CH=CHC(O)R_{12}$ -lower alkylene-C(O)R<sub>12</sub>, R<sub>10</sub>C(O)(lower alkylenyloxy)-,

N(R8)(R9)C(O)(lower alkylenyloxy)- and carbon atoms.

and the substituents on the substituted heteroaryl ring nitrogen atoms, when present, are selected from the group consisting of lower alkyl, lower alkoxy, -C(O)OR<sub>10</sub>, -C(O)R<sub>10</sub>, OH, N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylene-,N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylenyloxy-, -S(O)<sub>2</sub>NH<sub>2</sub> and 2-(trimethylsilyl)-ethoxymethyl;

R7 is 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, -COOH, NO2, -N(R8)(R9), OH, and halogeno;

R8 and R9 are independently selected from H or lower alkyl;

R<sub>10</sub> is selected from lower alkyl, phenyl, R<sub>7</sub>-phenyl, benzyl or R<sub>7</sub>-benzyl;

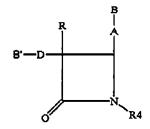
R<sub>11</sub> is selected from OH, lower alkyl, phenyl, benzyl, R<sub>7</sub>-phenyl or R<sub>7</sub>-benzyl; R<sub>12</sub> is selected from H, OH, alkoxy, phenoxy, benzyloxy,

R<sub>13</sub> is selected from -O-, -CH<sub>2</sub>-, -NH-, -N(lower alkyl)- or -NC(O)R<sub>19</sub>;

R<sub>15</sub>, R<sub>16</sub> and R<sub>17</sub> are independently selected from the group consisting of H and the groups defined for W; or R<sub>15</sub> is hydrogen and R<sub>16</sub> and R<sub>17</sub>, together with adjacent carbon atoms to which they are attached, form a dioxolanyl ring;

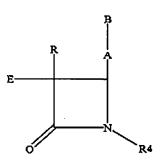
R19 is H, lower alkyl, phenyl or phenyl lower alkyl; and R20 and R21 are independently selected from the group consisting of phenyl, W-substituted phenyl, naphthyl, W-substituted naphthyl, indanyl, indenyl, tetrahydronaphthyl, benzodioxolyl, heteroaryl, W-substituted heteroaryl, benzofused heteroaryl, W-substituted benzofused heteroaryl and cyclopropyl, wherein heteroaryl is as defined above;

# (f) Formula (VIIA) or (VIIB):



(VIIA)

or



(VIIB)

or a pharmaceutically acceptable salt or solvate thereof, wherein:

A is -CH=CH-, -C=C- or -(CH<sub>2</sub>)<sub>p</sub>- wherein p is 0, 1 or 2;

B is

B' is

D is -(CH<sub>2</sub>)<sub>m</sub>C(O)- or -(CH<sub>2</sub>)<sub>q</sub>- wherein m is 1, 2, 3 or 4 and q is 2, 3 or 4;

E is C<sub>10</sub> to C<sub>20</sub> alkyl or -C(O)-(C<sub>9</sub> to C<sub>19</sub>)-alkyl, wherein the alkyl is straight or branched, saturated or containing one or more double bonds;

R is hydrogen, C<sub>1</sub>-C<sub>15</sub> alkyl, straight or branched, saturated or containing one or more double bonds, or B-(CH<sub>2</sub>)<sub>r</sub> -, wherein r is 0, 1, 2, or 3;

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>1</sub>, R<sub>2</sub>, and R<sub>3</sub> are independently selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, carboxy, NO<sub>2</sub>, NH<sub>2</sub>, OH, halogeno, lower alkylamino, dilower alkylamino, -NHC(O)OR<sub>5</sub>, R<sub>6</sub>O<sub>2</sub>SNH- and -S(O)<sub>2</sub>NH<sub>2</sub>;

R<sub>4</sub> is

wherein n is 0, 1, 2 or 3;

R5 is lower alkyl; and

R6 is OH, lower alkyl, phenyl, benzyl or substituted phenyl wherein the substituents are 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, carboxy, NO2, NH2, OH, halogeno, lower alkylamino and dilower alkylamino;

(g) Formula (VIII):

(VIII)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (VIII) above,

R<sup>26</sup> is H or OG<sup>1</sup>;

G and G<sup>1</sup> are independently selected from the group consisting of

and 
$$R^{4a}O$$
  $CH_2R^b$ ; provided that when  $R^{26}$  is H or  $CH_2R^a$ 

OH, G is not H;

R, R<sup>a</sup> and R<sup>b</sup> are independently selected from the group consisting of H, -OH, halogeno, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)-alkoxy or -W-R<sup>30</sup>;

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N(R $^{31}$ )-, -NH-C(O)-N(R $^{31}$ )-;

R<sup>2</sup> and R<sup>6</sup> are independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl(C1-C6)alkyl;

R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>3a</sup> and R<sup>4a</sup> are independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl and -C(O)aryl;

R<sup>30</sup> is selected from the group consisting of R<sup>32</sup>-substituted T, R<sup>32</sup>-substituted-T-(C<sub>1</sub>-C<sub>6</sub>)alkyl, R<sup>32</sup>-substituted-(C<sub>2</sub>-C<sub>4</sub>)alkenyl,

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R<sup>32</sup>-substituted-(C<sub>1</sub>-C<sub>6</sub>)alkyl, R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl and R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl(C<sub>1</sub>-C<sub>6</sub>)alkyl;

R<sup>31</sup> is selected from the group consisting of H and (C<sub>1</sub>-C<sub>4</sub>)alkyl;

T is selected from the group consisting of phenyl, furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, thiazolyl, iosthiazolyl, benzothiazolyl, thiadiazolyl, pyrazolyl, imidazolyl and pyridyl;

R<sup>32</sup> is independently selected from 1-3 substituents independently selected from the group consisting of halogeno, (C<sub>1</sub>-C<sub>4</sub>)alkyl, -OH, phenoxy,

-CF3, -NO2, (C1-C4)alkoxy, methylenedioxy, oxo, (C1-C4)alkylsulfanyl,

(C1-C4)alkylsulfinyl, (C1-C4)alkylsulfonyl, -N(CH3)2, -C(O)-NH(C1-C4)alkyl,

-C(O)-N((C1-C4)alkyl)<sub>2</sub>, -C(O)-(C1-C4)alkyl, -C(O)-(C1-C4)alkoxy and pyrrolidinylcarbonyl; or R<sup>32</sup> is a covalent bond and R<sup>31</sup>, the nitrogen to which it is attached and R<sup>32</sup> form a pyrrolidinyl, piperidinyl, N-methyl-piperazinyl, indolinyl or morpholinyl group, or a (C1-C4)alkoxycarbonyl-substituted pyrrolidinyl, piperidinyl, N-methylpiperazinyl, indolinyl or morpholinyl group;

Ar<sup>1</sup> is anyl or R<sup>10</sup>-substituted anyl;

Ar<sup>2</sup> is anyl or R<sup>11</sup>-substituted anyl;

Q is a bond or, with the 3-position ring carbon of the azetidinone,

 $R^{12}$ — $(R^{13})_a$  forms the spiro group  $(R^{14})_b$  ; and

R<sup>1</sup> Is selected from the group consisting of

-(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 2-6, provided that when Q forms a spiro ring, q can also be zero or 1;

-(CH<sub>2</sub>)<sub>e</sub>-E-(CH<sub>2</sub>)<sub>r</sub>-, wherein E is -O-, -C(O)-, phenylene, -NR<sup>22</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;

-(C2-C6)aikenylene-; and

-(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6;

R12 is

-CH-, -C(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -CF-, -C(OH)-, -C(C<sub>6</sub>H<sub>4</sub>-R<sup>23</sup>)-, -N-, or -
$$^{+}$$
NO- ;

 $R^{13}$  and  $R^{14}$  are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and

-C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-; or R<sup>12</sup> together with an adjacent R<sup>13</sup>, or R<sup>12</sup> together with an adjacent R<sup>14</sup>, form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>6</sub> alkyl)- group;

a and b are independently 0, 1, 2 or 3, provided both are not zero; provided that when R<sup>13</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, a is 1; provided that when R<sup>14</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, b is 1; provided that when a is 2 or 3, the R<sup>13</sup>'s can be the same or different; and provided that when b is 2 or 3, the R<sup>14</sup>'s can be the same or different; and when Q is a bond, R<sup>1</sup> also can be:

M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub>)alkyl- and -C(di-(C<sub>1</sub>-C<sub>6</sub>)alkyl);

 ${\sf R}^{10}$  and  ${\sf R}^{11}$  are independently selected from the group consisting of 1-3 substituents independently selected from the group consisting of

(C<sub>1</sub>-C<sub>6</sub>)alkyl, -OR<sup>19</sup>, -O(CO)R<sup>19</sup>, -O(CO)OR<sup>21</sup>, -O(CH<sub>2</sub>)<sub>1-5</sub>OR<sup>19</sup>.

-O(CO)NR19R20, -NR19R20, -NR19(CO)R20, -NR19(CO)OR21,

-NR<sup>19</sup>(CO)NR<sup>20</sup>R<sup>25</sup>, -NR<sup>19</sup>SO<sub>2</sub>R<sup>21</sup>, -COOR<sup>19</sup>, -CONR<sup>19</sup>R<sup>20</sup>, -COR<sup>19</sup>,

-SO2NR<sup>19</sup>R<sup>20</sup>, S(O)<sub>0-2</sub>R<sup>21</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>-COOR<sup>19</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>CONR<sup>19</sup>R<sup>20</sup>,

-(C1-C6 alkylene)-COOR<sup>19</sup>, -CH=CH-COOR<sup>19</sup>, -CF<sub>3</sub>, -CN, -NO<sub>2</sub> and halogen;

R<sup>15</sup> and R<sup>17</sup> are independently selected from the group consisting of -OR<sup>19</sup>, -O(CO)R<sup>19</sup>, -O(CO)OR<sup>21</sup> and -O(CO)NR<sup>19</sup>R<sup>20</sup>;

 $R^{16}$  and  $R^{18}$  are independently selected from the group consisting of H, (C1-C6)alkyl and aryl; or  $R^{15}$  and  $R^{16}$  together are =0, or  $R^{17}$  and  $R^{18}$  together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4;

provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1:

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

and when Q is a bond and R<sup>1</sup> is R<sup>16</sup>, Ar<sup>1</sup> can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

 $R^{19}$  and  $R^{20}$  are independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl-substituted (C1-C6)alkyl;

R<sup>21</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>24</sup>-substituted aryl;

R<sup>22</sup> is H<sub>1</sub> (C<sub>1</sub>-C<sub>6</sub>)alkyl<sub>1</sub> aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl<sub>1</sub> -C(O)R<sup>19</sup> or -COOR<sup>19</sup>:

R<sup>23</sup> and R<sup>24</sup> are independently 1-3 groups independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>1</sub>-C<sub>6</sub>)alkoxy, -COOH, NO<sub>2</sub>,

-NR<sup>19</sup>R<sup>20</sup>, -OH and halogeno; and

R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy; and

(h) Formula (IX):

or a pharmaceutically acceptable salt or solvate thereof, wherein in Formula (IX):

R<sup>1</sup> is selected from the group consisting of H, G, G<sup>1</sup>, G<sup>2</sup>, -SO<sub>3</sub>H and -PO<sub>3</sub>H;

G is selected from the group consisting of: H,

$$R^5Q$$
  $OR^4$   $R^5Q$   $OR^4$   $OR^3$   $OR^5$   $OR^5$   $OR^3$   $OR^3$   $OR^4$   $OR^3$   $OR^4$   $OR^3$   $OR^4$   $OR^3$   $OR^4$   $OR^3$   $OR^4$   $OR^5$   $OR^5$   $OR^6$   $OR^6$ 

wherein R, R<sup>a</sup> and R<sup>b</sup> are each independently selected from the group consisting of H, -OH, halo, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)alkoxy or -W-R<sup>30</sup>;

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N(R $^{31}$ )-, -NH-C(O)-N(R $^{31}$ )- and -O-C(S)-N(R $^{31}$ )-;

R<sup>2</sup> and R<sup>6</sup> are each independently selected from the group consisting of H, (C1-C6)alkyl, acetyl, aryl and aryl(C1-C6)alkyl;

R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>3a</sup> and R<sup>4a</sup> are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, acetyl, aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl and -C(O)aryl;

 $R^{30}$  is independently selected from the group consisting of  $R^{32}$ -substituted T,  $R^{32}$ -substituted-T-(C1-C6)alkyl,  $R^{32}$ -substituted-(C2-C4)alkenyl,  $R^{32}$ -substituted-(C1-C6)alkyl,  $R^{32}$ -substituted-(C3-C7)cycloalkyl, and  $R^{32}$ -substituted-(C3-C7)cycloalkyl(C1-C6)alkyl;

R<sup>31</sup> is independently selected from the group consisting of H and (C<sub>1</sub>-C<sub>4</sub>)alkyl;

T is independently selected from the group consisting of phenyl, furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, benzothiazolyl, thiadiazolyl, pyrazolyl, imidazolyl and pyrldyl;

R<sup>32</sup> is independently selected from 1-3 substituents which are each independently selected from the group consisting of H, halo, (C<sub>1</sub>-C<sub>4</sub>)alkyl, -OH, phenoxy, -CF<sub>3</sub>, -NO<sub>2</sub>, (C<sub>1</sub>-C<sub>4</sub>)alkoxy, methylenedioxy, oxo, (C<sub>1</sub>-C<sub>4</sub>)alkylsulfanyl, (C<sub>1</sub>-C<sub>4</sub>)alkylsulfanyl, -N(CH<sub>3</sub>)<sub>2</sub>, -C(O)-NH(C<sub>1</sub>-C<sub>4</sub>)alkyl, -C(O)-N((C<sub>1</sub>-C<sub>4</sub>)alkyl)<sub>2</sub>, -C(O)-(C<sub>1</sub>-C<sub>4</sub>)alkyl, -C(O)-(C<sub>1</sub>-C<sub>4</sub>)alkoxy and pyrrolidinylcarbonyl; or R<sup>32</sup> Is a covalent bond and R<sup>31</sup>, the nitrogen to which it is attached and R<sup>32</sup> form a pyrrolidinyl, piperidinyl, N-methyl-piperazinyl, indolinyl or morpholinyl group, or a (C<sub>1</sub>-C<sub>4</sub>)alkoxycarbonyl-substituted pyrrolidinyl, piperidinyl, N-methylpiperazinyl, indolinyl or morpholinyl group;

G<sup>1</sup> is represented by the structure:

wherein R<sup>33</sup> is independently selected from the group consisting of unsubstituted alkyl, R<sup>34</sup>-substituted alkyl, (R<sup>35</sup>)(R<sup>36</sup>)alkyl-,

 $R^{34}$  is one to three substituents, each  $R^{34}$  being independently selected from the group consisting of HOOC-, HO-, HS-, (CH<sub>3</sub>)S-, H<sub>2</sub>N-, (NH<sub>2</sub>)(NH)C(NH)-, (NH<sub>2</sub>)C(O)- and HOOCCH(NH<sub>2</sub><sup>+</sup>)CH<sub>2</sub>SS-;

R<sup>35</sup> is independently selected from the group consisting of H and NH<sub>2</sub>-;

R<sup>36</sup> is independently selected from the group consisting of H, unsubstituted alkyl, R<sup>34</sup>-substituted alkyl, unsubstituted cycloalkyl and R<sup>34</sup>-substituted cycloalkyl;

G2 is represented by the structure:

wherein  $R^{37}$  and  $R^{38}$  are each independently selected from the group consisting of  $(C_1\text{--}C_6)$ alkyl and aryl;

 $\mathsf{R}^{26}$  is one to five substituents, each  $\mathsf{R}^{26}$  being independently selected from the group consisting of:

- a) H;
- b) -OH:
- c) -OCH<sub>3</sub>;
- d) fluorine:

- e) chlorine;
- f) ' -O-G;
- g) -O-G<sup>1</sup>;
- ከ) -O-G<sup>2</sup>:
- i) -SO<sub>3</sub>H; and
- j) −PO<sub>3</sub>H;

provided that when R1 is H, R26 is not H, -OH, -OCH3 or -O-G;

Ar<sup>1</sup> is aryl, R<sup>10</sup>-substituted aryl, heteroaryl or R<sup>10</sup>-substituted heteroaryl;

Ar<sup>2</sup> is aryl, R<sup>11</sup>-substituted aryl, heteroaryl or R<sup>11</sup>-substituted heteroaryl;

L is selected from the group consisting of:

- a) a covalent bond;
- b)  $-(CH_2)_{a-}$ , wherein q is 1-6;
- c) -(CH<sub>2</sub>)<sub>e</sub>-E-(CH<sub>2</sub>)<sub>r</sub>, wherein E is --O-, -C(O)-, phenylene, -NR<sup>22</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;
- d) –(C<sub>2</sub>-C<sub>6</sub>)alkenylene-;
- e) -(CH<sub>2</sub>)<sub>r</sub>V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub>cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6; and

f)

$$- M - Y_d - C - Z_h - Z_h - X_m - (C)_s - Y_h - (C)_s - Z_p - C - X_h - (C)_v - Y_k - S(O)_{O-2} - X_h - (C)_v - Y_h - S(O)_{O-2} - (C)_v - Y_h - (C)_v - Y_h - (C)_v - Y_h - S(O)_{O-2} - (C)_v - Y_h - (C)_v - Y_h - (C)_v - Y_h - (C)_v - Y_h - S(O)_{O-2} - (C)_v - Y_h - (C)_v - Y_h - (C)_v - Y_h - S(O)_{O-2} - (C)_v - Y_h - (C)_v - (C)_v - Y_h - (C)_v - (C)$$

wherein M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are each independently selected from the group consisting of  $-CH_2$ -,  $-CH(C_1-C_6)$ alkyl- and  $-C(di-(C_1-C_6)$ alkyl)-;

R8 is selected from the group consisting of H and alkyl;

 $R^{10}$  and  $R^{11}$  are each independently selected from the group consisting of 1-3 substituents which are each independently selected from the group consisting of (C1-C6)alkyl,  $-OR^{19}$ ,  $-O(CO)R^{19}$ ,  $-O(CO)OR^{21}$ ,  $-O(CH_2)_{1-5}OR^{19}$ ,  $-O(CO)NR^{19}R^{20}$ ,  $-NR^{19}R^{20}$ ,  $-NR^{19}(CO)R^{20}$ ,  $-NR^{19}(CO)OR^{21}$ ,  $-OR^{19}(CO)NR^{20}R^{25}$ ,  $-NR^{19}SO_2R^{21}$ ,  $-COOR^{19}$ ,  $-CONR^{19}R^{20}$ ,  $-COR^{19}$ ,  $-COR^{19}$ ,  $-O(CH_2)_{1-10}CONR^{19}R^{20}$ ,

R<sup>15</sup> and R<sup>17</sup> are each independently selected from the group consisting of --OR<sup>19</sup>, -OC(O)R<sup>19</sup>, -OC(O)OR<sup>21</sup>, - OC(O)NR<sup>19</sup>R<sup>20</sup>;

 $R^{16}$  and  $R^{18}$  are each independently selected from the group consisting of H,  $(C_1-C_6)$  alkyl and anyl;

or R<sup>15</sup> and R<sup>16</sup> together are =O, or R<sup>17</sup> and R<sup>18</sup> together are =O;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1;

t is 0 or 1;

m, n and p are each independently selected from 0-4;

provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, n and p is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are each independently 1-5, provided that the sum of j, k and v is 1-5;

Q is a bond, -(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 1-6, or, with the 3-position ring carbon of the azetidinone, forms the spiro group

$$(R^{14})_{b}^{12}$$
  $(R^{13})_{a}$ 

wherein R12 is

 $R^{13}$  and  $R^{14}$  are each independently selected from the group consisting of -CH2-, -CH(C1-C6 alkyl)-, -C(di-(C1-C6) alkyl), -CH=CH- and -C(C1-C6 alkyl)=CH-; or  $R^{12}$  together with an adjacent  $R^{13}$ , or  $R^{12}$  together with an adjacent  $R^{14}$ , form a -CH=CH- or a -CH=C(C1-C6 alkyl)- group;

a and b are each independently 0, 1, 2 or 3, provided both are not zero; provided that when  $R^{13}$  is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, a is 1; provided that when  $R^{14}$  is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, b is 1; provided that when a is 2 or 3, the  $R^{13}$ 's can be the same or different; and provided that when b is 2 or 3, the  $R^{14}$ 's can be the same or different;

and when Q is a bond and L is

then Ar<sup>1</sup> can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

R<sup>19</sup> and R<sup>20</sup> are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl and aryl-substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl;

R<sup>21</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, anyl or R<sup>24</sup>-substituted anyl;

R<sup>22</sup> is H, (C1-C6)alkyl, aryl (C1-C6)alkyl, -C(O)R<sup>19</sup> or -COOR<sup>19</sup>;

 $R^{23}$  and  $R^{24}$  are each independently selected from the group consisting of 1-3 substituents which are each independently selected from the group consisting of H, (C1-C6)alkyl, (C1-C6)alkoxy, -COOH, NO<sub>2</sub>, -NR<sup>19</sup>R<sup>20</sup>, -OH and halo; and

R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy.

26. (Currently Amended) A therapeutic combination comprising: (a) a first amount of at least one sterol absorption inhibitor or a pharmaceutically acceptable salt or solvate thereof; and (b) a second amount of at least one other agent useful for the treatment of an autoimmune disorder, wherein the first amount and the second amount together comprise a therapeutically effective amount for the treatment or prevention of an autoimmune disorder in a subject, wherein the at least one sterol absorption inhibitor is selected from the group consisting of sterol absorption inhibitors represented by the following Formulae:

### (a) Formula (i):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$

$$Ar^{3}$$

$$R^{1}$$

$$R^{3}$$

$$Ar^{2}$$
(I)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

Ar<sup>1</sup> and Ar<sup>2</sup> are independently selected from the group consisting of aryl and R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is aryl or R<sup>5</sup>-substituted aryl;

X, Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R and R<sup>2</sup> are independently selected from the group consisting of -OR<sup>6</sup>, -O(CO)OR<sup>9</sup> and -O(CO)NR<sup>6</sup>R<sup>7</sup>;

R<sup>1</sup> and R<sup>3</sup> are independently selected from the group consisting of hydrogen, lower alkyl and aryl;

q is 0 or 1;

r is 0 or 1;

-NO, and halogen;

m, n and p are independently selected from 0, 1, 2, 3 or 4; provided that at least one of q and r is 1, and the sum of m, n, p, q and r is 1, 2, 3, 4, 5 or 6; and provided that when p is 0 and r is 1, the sum of m, q and n is 1, 2, 3, 4 or 5;

 $R^4$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-CONR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $S(O)_{0-2}R^9$ ,  $-O(CH_2)_{1-10}-COOR^6$ ,  $-CF_{--}CN$ .

 $R^5$  is 1-5 substituents independently selected from the group consisting of -OR $^6$ , -O(CO)R $^6$ , -O(CO)OR $^9$ , -O(CH $_2$ ) $_{1.5}$ OR $^6$ , -O(CO)NR $^8$ R $^7$ , -NR $^6$ R $^7$ , -NR $^6$ (CO)RR $^7$ , -NR $^6$ (CO)OR $^9$ , -NR $^6$ (CO)NR $^7$ R $^8$ , -NR $^6$ SO $_2$ R $^9$ , -COOR $^6$ , -CONR $^6$ R $^7$ , -COR $^6$ , -SO $_2$ NR $^6$ R $^7$ , S(O) $_{0.2}$ R $^9$ , -O(CH $_2$ ) $_{1-10}$ -COOR $^6$ , -O(CH $_2$ ) $_{1-10}$ CONR $^6$ R $^7$ ,

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

-(lower alkylene)COOR<sup>6</sup> and -CH=CH-COOR<sup>6</sup>:

### (b) Formula (III):

$$Ar^{1}$$
 $Ar^{1}$ 
 $Ar^{2}$ 
 $Ar^{3}$ 
 $Ar^{2}$ 
 $Ar^{3}$ 

(111)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (III) above:

Ar<sup>1</sup> is R<sup>3</sup>-substituted aryl;

Ar<sup>2</sup> is R<sup>4</sup>-substituted aryl;

Ar<sup>3</sup> is R<sup>5</sup>-substituted aryl;

Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-,

-CH(lower alkyl)- and -C(dilower alkyl)-;

A is selected from -O-, -S-, -S(O)- or -S(O)2-;

 $R^{1}$  is selected from the group consisting of  $-OR^{6}$ ,  $-O(CO)R^{6}$ ,  $-O(CO)OR^{9}$  and  $-O(CO)NR^{6}R^{7}$ ;  $R^{2}$  is selected from the group consisting of hydrogen, lower alkyl and aryl; or  $R^{1}$  and  $R^{2}$  together are =O;

q is 1, 2 or 3;

p is 0, 1, 2, 3 or 4;

 $R^5$  is 1-3 substituents independently selected from the group consisting of  $-\mathsf{OR}^6$ ,  $-\mathsf{O}(\mathsf{CO})\mathsf{R}^6$ ,  $-\mathsf{O}(\mathsf{CO})\mathsf{OR}^9$ ,  $-\mathsf{O}(\mathsf{CH}_2)_{1-5}\mathsf{OR}^9$ ,  $-\mathsf{O}(\mathsf{CO})\mathsf{NR}^6\mathsf{R}^7$ ,  $-\mathsf{NR}^6\mathsf{R}^7$ ,  $-\mathsf{NR}^6(\mathsf{CO})\mathsf{R}^7$ ,  $-\mathsf{NR}^6(\mathsf{CO})\mathsf{OR}^9$ ,  $-\mathsf{NR}^6(\mathsf{CO})\mathsf{NR}^7\mathsf{R}^8$ ,  $-\mathsf{NR}^6\mathsf{SO}_2$ -lower alkyl,  $-\mathsf{NR}^6\mathsf{SO}_2$ -aryl,  $-\mathsf{CONR}^6\mathsf{R}^7$ ,  $-\mathsf{COR}^6$ ,  $-\mathsf{SO}_2\mathsf{NR}^6\mathsf{R}^7$ ,  $\mathsf{S}(\mathsf{O})_{0-2}$ -alkyl,  $\mathsf{S}(\mathsf{O})_{0-2}$ -aryl,  $-\mathsf{O}(\mathsf{CH}_2)_{1-10}$ -COOR $^6$ ,  $-\mathsf{O}(\mathsf{CH}_2)_{1-10}$ -COOR $^6$ , o-halogeno, m-halogeno, o-lower alkyl, m-lower alkyl, -(lower alkylene)-COOR $^6$ , and

-CH=CH-COOR<sup>6</sup>;

R<sup>3</sup> and R<sup>4</sup> are independently 1-3 substituents independently selected from the group consisting of R<sup>5</sup>, hydrogen, p-lower alkyl, aryl, -NO<sub>2</sub>, -CF<sub>3</sub> and p-halogeno;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl;

# (c) Formula (iV):

(IV)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (IV) above:

A is selected from the group consisting of  $R^2$ -substituted heterocycloalkyl,  $R^2$ -substituted heterocycloalkyl,  $R^2$ -substituted benzofused heterocycloalkyl, and  $R^2$ -substituted benzofused heterocycloalkyl;

Ar<sup>1</sup> is aryl or R<sup>3</sup>-substituted aryl;

Ar<sup>2</sup> is anyl or R<sup>4</sup>-substituted anyl;

Q is a bond or, with the 3-position ring carbon of the azetidinone, forms the

spiro group 
$$(R^7)_b$$
 ; and

R<sup>1</sup> is selected from the group consisting of:

 $-(CH_2)_q$ -, wherein q is 2-6, provided that when Q forms a spiro ring, q can also be zero or 1;

 $-(CH_2)_e$ -G- $(CH_2)_r$ -, wherein G is -O-, -C(O)-, phenylene, -NR<sup>8</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;

-(C2-C6 alkenylene)-; and

 $-(CH_2)_f$ -V- $(CH_2)_g$ -, wherein V is  $C_3$ - $C_6$  cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6;

R<sup>5</sup> is selected from:

 $R^6$  and  $R^7$  are independently selected from the group consisting of  $-CH_2$ -,  $-CH(C_1$ - $C_6$  alkyl)-,  $-C(di-(C_1$ - $C_6)$  alkyl), -CH=CH- and  $-C(C_1$ - $C_6$  alkyl)=CH-; or  $R^5$  together with an adjacent  $R^6$ , or  $R^5$  together with an adjacent  $R^7$ , form a -CH=CH- or a -CH=C( $C_1$ - $C_6$  alkyl)- group;

a and b are independently 0, 1, 2 or 3, provided both are not zero; provided that when  $R^8$  is -CH=CH- or -C( $C_1$ - $C_6$  alkyl)=CH-, a is 1; provided that when  $R^7$  is -CH=CH- or -C( $C_1$ - $C_6$  alkyl)=CH-, b is 1; provided that when a is 2 or 3, the  $R^6$ 's can be the same or different; and provided that when b is 2 or 3, the  $R^7$ 's can be the same or different:

and when Q is a bond, R<sup>1</sup> also can be selected from:

where M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are independently selected from the group consisting of  $-CH_2$ -,  $-CH(C_1-C_6)$  alkyl)- and  $-C(di-(C_1-C_6))$  alkyl);

R<sup>10</sup> and R<sup>12</sup> are independently selected from the group consisting of -OR<sup>14</sup>, -O(CO)R<sup>14</sup>, -O(CO)OR<sup>16</sup> and -O(CO)NR<sup>14</sup>R<sup>15</sup>;

 $R^{11}$  and  $R^{13}$  are independently selected from the group consisting of hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl and aryl; or  $R^{10}$  and  $R^{11}$  together are =0, or  $R^{12}$  and  $R^{13}$  together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4; provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

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Application No. 10/700,909
Paper Dated June 5, 2007
In Reply to Office Action of March 5, 2007
Attorney Docket No. CV06093US01

The Webb Law Firm

 $R^2$  is 1-3 substituents on the ring carbon atoms selected from the group consisting of hydrogen,  $(C_1-C_{10})$ alkyl,  $(C_2-C_{10})$ alkenyl,  $(C_2-C_{10})$ alkynyl,  $(C_3-C_6)$ cycloalkyl,  $(C_3-C_6)$ cycloalkenyl,  $R^{17}$ -substituted aryl,  $R^{17}$ -substituted benzyl,  $R^{17}$ -substituted benzyloxy,  $R^{17}$ -substituted aryloxy, halogeno,  $-NR^{14}R^{15}$ ,  $NR^{14}R^{15}(C_1-C_6)$  alkylene)-,  $NR^{14}R^{15}C(O)(C_1-C_6)$  alkylene)-,  $-NHC(O)R^{16}$ ,  $-COR^{14}$ , hydroxy $-C_6$  alkylene)-,  $-R^{16}$  alkoxy $-R^{16}$ ,  $-R^{16}$ , alkylene)-,  $-R^{16}$ , alkylene

substituent on a heterocycloalkyl ring,  $R^2$  is as defined, or is =0 or  $O^{(CH_2)_{1-2}}$ ; and, where  $R^2$  is a substituent on a substitutable ring nitrogen, it is hydrogen,  $(C_1-C_6)$ alkyl, aryl,  $(C_1-C_6)$ alkoxy, aryloxy,  $(C_1-C_6)$ alkylcarbonyl, arylcarbonyl, hydroxy,  $-(CH_2)_{1-2}$ CONR<sup>18</sup>R<sup>18</sup>.

wherein J is -O-, -NH-, -NR<sup>18</sup>- or -CH<sub>2</sub>-;

 $R^{3} \ \, \text{and} \ \, R^{4} \ \, \text{are independently selected from the group consisting of } 1-3 \ \, \text{substituents independently selected from the group consisting of } (C_{1}-C_{6}) \text{alkyl}, \\ -OR^{14}, -O(CO)R^{14}, -O(CO)OR^{16}, -O(CH_{2})_{1-5}OR^{14}, -O(CO)NR^{14}R^{15}, -NR^{14}R^{15}, \\ -NR^{14}(CO)R^{15}, -NR^{14}(CO)OR^{16}, -NR^{14}(CO)NR^{15}R^{19}, -NR^{14}SO_{2}R^{16}, -COOR^{14}, \\ -CONR^{14}R^{15}, -COR^{14}, -SO_{2}NR^{14}R^{15}, S(O)_{0-2}R^{16}, -O(CH_{2})_{1-10}-COOR^{14}, \\ -O(CH_{2})_{1-10}CONR^{14}R^{15}, -(C_{1}-C_{6} \ \, \text{alkylene})-COOR^{14}, -CH=CH-COOR^{14}, -CF_{3}, -CN_{1}-NO_{2} \ \, \text{and halogen}; \\ \end{array}$ 

R<sup>8</sup> is hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(0)R<sup>14</sup> or -COOR<sup>14</sup>;

 $R^9$  and  $R^{17}$  are independently 1-3 groups independently selected from the group consisting of hydrogen,  $(C_1-C_6)$ alkyl,  $(C_1-C_6)$ alkoxy, -COOH,  $NO_2$ , -NR<sup>14</sup>R<sup>15</sup>, OH and halogeno;

R<sup>14</sup> and R<sup>15</sup> are independently selected from the group consisting of hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl and aryl-substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl;

R<sup>16</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>17</sup>-substituted aryl;

R<sup>18</sup> is hydrogen or (C<sub>1</sub>-C<sub>6</sub>)alkyl; and

R<sup>19</sup> is hydrogen, hydroxy or (C<sub>1</sub>-C<sub>6</sub>)alkoxy;

### (d) Formula (V):

$$Ar^{1} \times_{m} \stackrel{R}{\underset{R^{1}}{|}} Y_{n} \stackrel{S(O)_{r}}{\underset{O}{\longrightarrow}} Ar^{2}$$

**(V)** 

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (V) above:

Ar<sup>1</sup> is aryl, R<sup>10</sup>-substituted aryl or heteroaryl;

Ar<sup>2</sup> is anyl or R<sup>4</sup>-substituted anyl;

Ar<sup>3</sup> is aryl or R<sup>5</sup>-substituted aryl;

X and Y are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R is  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$  or  $-O(CO)NR^6R^7$ ; R<sup>1</sup> is hydrogen, lower alkyl or aryl; or R and R<sup>1</sup> together are =0;

q is 0 or 1;

r is 0, 1 or 2;

m and n are independently 0, 1, 2, 3, 4 or 5; provided that the sum of m, n and q is 1, 2, 3, 4 or 5;

 $R^4$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,

 $-NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)OR^9$ ,  $-NR^6(CO)NR^7R^8$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,

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-CONR<sup>6</sup>R<sup>7</sup>, -COR<sup>6</sup>, -SO<sub>2</sub>NR<sup>6</sup>R<sup>7</sup>, S(O)<sub>0-2</sub>R<sup>9</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>-COOR<sup>6</sup>, -O(CH<sub>2</sub>)<sub>1-10</sub>CONR<sup>6</sup>R<sup>7</sup>, -(lower alkylene)COOR<sup>6</sup> and -CH=CH-COOR<sup>6</sup>;

 $R^5$  is 1-5 substituents independently selected from the group consisting of  $-\mathsf{OR}^6$ ,  $-\mathsf{O}(\mathsf{CO})\mathsf{R}^6$ ,  $-\mathsf{O}(\mathsf{CO})\mathsf{OR}^9$ ,  $-\mathsf{O}(\mathsf{CH}_2)_{1.5}\mathsf{OR}^6$ ,  $-\mathsf{O}(\mathsf{CO})\mathsf{NR}^6\mathsf{R}^7$ ,  $-\mathsf{NR}^6\mathsf{R}^7$ ,  $-\mathsf{NR}^6\mathsf{CO})\mathsf{R}^7$ ,  $-\mathsf{NR}^6\mathsf{CO})\mathsf{NR}^7\mathsf{R}^8$ ,  $-\mathsf{NR}^6\mathsf{SO}_2\mathsf{R}^9$ ,  $-\mathsf{COOR}^6$ ,  $-\mathsf{CONR}^6\mathsf{R}^7$ ,  $-\mathsf{COR}^6$ ,  $-\mathsf{SO}_2\mathsf{NR}^6\mathsf{R}^7$ ,  $\mathsf{S}(\mathsf{O})_{0.2}\mathsf{R}^9$ ,  $-\mathsf{O}(\mathsf{CH}_2)_{1.10}\mathsf{-COOR}^6$ ,  $-\mathsf{O}(\mathsf{CH}_2)_{1.10}\mathsf{CONR}^6\mathsf{R}^7$ ,  $-\mathsf{CF}_3$ ,  $-\mathsf{CN}$ ,  $-\mathsf{NO}_2$ , halogen,

-(lower alkylene)COOR<sup>6</sup> and -CH=CH-COOR<sup>6</sup>;

R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl;

R<sup>9</sup> is lower alkyl, aryl or aryl-substituted lower alkyl; and

 $R^{10}$  is 1-5 substituents independently selected from the group consisting of lower alkyl,  $-OR^6$ ,  $-O(CO)R^6$ ,  $-O(CO)OR^9$ ,  $-O(CH_2)_{1-5}OR^6$ ,  $-O(CO)NR^6R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6(CO)R^7$ ,  $-NR^6SO_2R^9$ ,  $-COOR^6$ ,  $-COR^6R^7$ ,  $-COR^6$ ,  $-SO_2NR^6R^7$ ,  $-S(O)_{0-2}R^9$ ,  $-O(CH_2)_{1-10}$ -COOR<sup>6</sup>,  $-O(CH_2)_{1-10}$ -COOR<sup>6</sup>,

#### (e) Formula (VI):

$$R_4$$
 $R_1$ 
 $R_2$ 
 $R_2$ 
 $R_3$ 
 $R_{20}$ 

(VI)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein:

R<sub>1</sub> is

-CH-, -C(lower alkyl)-, -CF-, -C(OH)-, -C(C<sub>6</sub>H<sub>5</sub>)-, -C(C<sub>6</sub>H<sub>4</sub>-R<sub>15</sub>)-,

R2 and R3 are independently selected from the group consisting of:
-CH2-, -CH(lower alkyl)-, -C(di-lower alkyl)-, -CH=CH- and -C(lower alkyl)=CH-; or
R1 together with an adjacent R2, or R1 together with an adjacent R3, form a
-CH=CH- or a -CH=C(lower alkyl)- group;

u and v are independently 0, 1, 2 or 3, provided both are not zero; provided that when R2 is -CH=CH- or -C(lower alkyl)=CH-, v is 1; provided that when R3 is -CH=CH- or -C(lower alkyl)=CH-, u is 1; provided that when v is 2 or 3, the R2's can be the same or different; and provided that when u is 2 or 3, the R3's can be the same or different;

R4 is selected from B-(CH<sub>2</sub>)<sub>m</sub>C(O)-, wherein m is 0, 1, 2, 3, 4 or 5;

B-(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 0, 1, 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>e</sub>-Z-(CH<sub>2</sub>)<sub>r</sub>, wherein Z is -O-, -C(O)-, phenylene, -N(R<sub>8</sub>)- or -S(O)<sub>0-2</sub>-, e is 0, 1, 2, 3, 4 or 5 and r is 0, 1, 2, 3, 4 or 5, provided that the sum of e and r is 0, 1, 2, 3, 4, 5 or 6;

B-(C2-C6 alkenylene)-;

B-(C4-C6 alkadienylene)-;

B-(CH<sub>2</sub>)t-Z-(C<sub>2</sub>-C<sub>6</sub> alkenylene)-, wherein Z is as defined above, and wherein t is 0,

1, 2 or 3, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>f</sub>-V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1, 2, 3, 4 or 5 and g is 0,

1, 2, 3, 4 or 5, provided that the sum of f and g is 1, 2, 3, 4, 5 or 6;

B-(CH2)t-V-(C2-C6 alkenylene)- or

B-(C2-C6 alkenylene)-V-(CH2)t-, wherein V and t are as defined above, provided that the sum of t and the number of carbon atoms in the alkenylene chain is 2, 3, 4, 5 or 6;

B-(CH<sub>2</sub>)<sub>a</sub>-Z-(CH<sub>2</sub>)<sub>b</sub>-V-(CH<sub>2</sub>)<sub>d</sub>-, wherein Z and V are as defined above and a, b and d are independently 0, 1, 2, 3, 4, 5 or 6, provided that the sum of a, b and d is 0, 1, 2, 3, 4, 5 or 6; or T-(CH<sub>2</sub>)<sub>s</sub>-, wherein T is cycloalkyl of 3-6 carbon atoms and s is 0, 1, 2, 3, 4, 5 or 6; or

R<sub>1</sub> and R<sub>4</sub> together form the group B-CH=C-;

B is selected from indanyl, indenyl, naphthyl, tetrahydronaphthyl, heteroaryl or W-substituted heteroaryl, wherein heteroaryl is selected from the group consisting of pyrrolyl, pyridinyl, pyrimidinyl, pyrazinyl, triazinyl, imidazolyl, thiazolyl, pyrazolyl, thienyl, oxazolyl and furanyl, and for nitrogen-containing heteroaryls, the N-oxides thereof, or

W is 1 to 3 substituents independently selected from the group consisting of lower alkyl, hydroxy lower alkyl, lower alkoxy, alkoxyalkyl, alkoxyalkoxy, alkoxycarbonylalkoxy, (lower alkoxyimino)-lower alkyl, lower alkanedioyl, lower alkyllower alkanedioyl, allyloxy, -CF3, -OCF3, benzyl, R7-benzyl, benzyloxy,

R7-benzyloxy, phenoxy, R7-phenoxy, dioxolanyl, NO2,-N(R8)(R9), N(R8)(R9)-lower alkylene-, N(R<sub>8</sub>)(R<sub>9</sub>)-lower alkylenyloxy-, OH, halogeno, -CN, -N<sub>3</sub>, -NHC(O)OR<sub>10</sub>, -NHC(O)R10, R1102SNH-, (R1102S)2N-, -S(O)2NH2, -S(O)<sub>0-2</sub>R<sub>8</sub>, butyldimethyl-silyloxymethyl, -C(O)R<sub>12</sub>, -COOR19. -CON(R<sub>8</sub>)(R<sub>9</sub>), CH=CHC(O)R<sub>12</sub>, -lower alkylene-C(O)R<sub>12</sub>, R<sub>10</sub>C(Q)(lower aikylenyloxy)-,

N(R8)(R9)C(O)(lower alkylenyloxy)- and CH<sub>2</sub>- N R<sub>13</sub> for substitution on ring carbon atoms.

and the substituents on the substituted heteroaryl ring nitrogen atoms, when present, are selected from the group consisting of lower alkyl, lower alkoxy, -C(O)OR<sub>10</sub>,

-C(O)R10, OH, N(R8)(R9)-lower alkylene-,N(R8)(R9)-lower alkylenyloxy-, -S(O)2NH2 and 2-(trimethylsilyl)-ethoxymethyl;

R7 is 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, -COOH, NO<sub>2</sub>, -N(R<sub>8</sub>)(R<sub>9</sub>), OH, and halogeno;

R8 and R9 are independently selected from H or lower alkyl;

R10 is selected from lower alkyl, phenyl, R7-phenyl, benzyl or R7-benzyl;

R11 is selected from OH, lower alkyl, phenyl, benzyl, R7-phenyl or R7-benzyl;

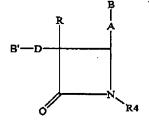
R<sub>12</sub> is selected from H, OH, alkoxy, phenoxy, benzyloxy,

R13 is selected from -O-, -CH2-, -NH-, -N(lower alkyl)- or -NC(O)R19;

R15, R16 and R17 are independently selected from the group consisting of H and the groups defined for W; or R15 is hydrogen and R16 and R17, together with adjacent carbon atoms to which they are attached, form a dioxolanyl ring;

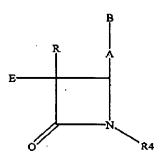
R19 is H, lower alkyl, phenyl or phenyl lower alkyl; and R20 and R21 are independently selected from the group consisting of phenyl, W-substituted phenyl, naphthyl, W-substituted naphthyl, indanyl, indenyl, tetrahydronaphthyl, benzodioxolyl, heteroaryl, W-substituted heteroaryl, benzofused heteroaryl, W-substituted benzofused heteroaryl and cyclopropyl, wherein heteroaryl is as defined above;

### (f) Formula (VIIA) or (VIIB):



(VIIA)

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(VIIB)

or a pharmaceutically acceptable salt or solvate thereof, wherein:

A is -CH=CH-, -C=C- or -(CH<sub>2</sub>)<sub>p</sub>- wherein p is 0, 1 or 2;

B is

$$R_1$$
 $R_2$ 
 $R_3$ 

B' is

D is -(CH<sub>2</sub>)<sub>m</sub>C(O)- or -(CH<sub>2</sub>)<sub>q</sub>- wherein m is 1, 2, 3 or 4 and q is 2, 3 or 4;

E is C<sub>10</sub> to C<sub>20</sub> alkyl or -C(O)-(C<sub>9</sub> to C<sub>19</sub>)-alkyl, wherein the alkyl is straight or branched, saturated or containing one or more double bonds:

R is hydrogen, C1-C15 alkyl, straight or branched, saturated or containing one or more double bonds, or B-(CH2) $_r$ -, wherein r is 0, 1, 2, or 3;

R1, R2, R3, R1', R2', and R3' are independently selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, carboxy, NO<sub>2</sub>, NH<sub>2</sub>, OH, halogeno, lower alkylamino, dilower alkylamino, -NHC(O)OR5, R6O<sub>2</sub>SNH- and -S(O)<sub>2</sub>NH<sub>2</sub>;

R<sub>4</sub> is

wherein n is 0, 1, 2 or 3;

R5 is lower alkyl: and

R6 is OH, lower alkyl, phenyl, benzyl or substituted phenyl wherein the substituents are 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, carboxy, NO<sub>2</sub>, NH<sub>2</sub>, OH, halogeno, lower alkylamino and dilower alkylamino;

## (g) Formula (VIII):

(IIIV)

or a pharmaceutically acceptable salt thereof or a solvate thereof, wherein, in Formula (VIII) above,

R<sup>26</sup> is H or OG<sup>1</sup>;

G and G<sup>1</sup> are independently selected from the group consisting of

$$O_{1}^{0}O$$

and 
$$R^{48}Q$$
  $R^{48}Q$   $R^{48}Q$ 

OH, G is not H;

R, R<sup>a</sup> and R<sup>b</sup> are independently selected from the group consisting of H, -OH, halogeno, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)-alkoxy or -W-R<sup>30</sup>;

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N( $\mathbb{R}^{31}$ )-, -NH-C(O)-N( $\mathbb{R}^{31}$ )-;

R<sup>2</sup> and R<sup>6</sup> are independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl(C1-C6)alkyl;

R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>3a</sup> and R<sup>4a</sup> are independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl and -C(O)aryl;

R<sup>30</sup> is selected from the group consisting of R<sup>32</sup>-substituted T, R<sup>32</sup>-substituted-T-(C<sub>1</sub>-C<sub>6</sub>)alkyl, R<sup>32</sup>-substituted-(C<sub>2</sub>-C<sub>4</sub>)alkenyl, R<sup>32</sup>-substituted-(C<sub>1</sub>-C<sub>6</sub>)alkyl, R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl and R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl(C<sub>1</sub>-C<sub>6</sub>)alkyl;

R<sup>31</sup> is selected from the group consisting of H and (C<sub>1</sub>-C<sub>4</sub>)alkyl;

T is selected from the group consisting of phenyl, furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, thiazolyl, iosthiazolyl, benzothiazolyl, thiadiazolyl, pyrazolyl, imidazolyl and pyridyl;

R<sup>32</sup> is independently selected from 1-3 substituents independently selected from the group consisting of halogeno, (C1-C4)alkyl, -OH, phenoxy,

-CF3, -NO2, (C1-C4)alkoxy, methylenedioxy, oxo, (C1-C4)alkylsulfanyl,

(C1-C4)alkylsulfinyl, (C1-C4)alkylsulfonyl, -N(CH3)2, -C(O)-NH(C1-C4)alkyl,

-C(O)-N((C<sub>1</sub>-C<sub>4</sub>)alkyl)<sub>2</sub>, -C(O)-(C<sub>1</sub>-C<sub>4</sub>)alkyl, -C(O)-(C<sub>1</sub>-C<sub>4</sub>)alkoxy and pyrrolidinylcarbonyl; or  $\mathbb{R}^{32}$  is a covalent bond and  $\mathbb{R}^{31}$ , the nitrogen to which it is attached and  $\mathbb{R}^{32}$  form a pyrrolidinyl, piperidinyl, N-methyl-piperazinyl, indolinyl or morpholinyl group, or a (C<sub>1</sub>-C<sub>4</sub>)alkoxycarbonyl-substituted pyrrolidinyl, piperidinyl,

N-methylpiperazinyl, indolinyl or morpholinyl group;

Ar<sup>1</sup> is anyl or R<sup>10</sup>-substituted anyl;

Ar<sup>2</sup> is aryl or R<sup>11</sup>-substituted aryl;

Q is a bond or, with the 3-position ring carbon of the azetidinone,

 $\begin{array}{c|c} & & & \\ & & \\ R^{12} & & \\ \hline \end{array} (R^{13})_a \\ \text{forms the spiro group } (R^{14})_b & & \\ \end{array}; \text{ and }$ 

R<sup>1</sup> is selected from the group consisting of

 $-(CH_2)_{q^-}$ , wherein q is 2-6, provided that when Q forms a spiro ring, q can also be zero or 1:

-(CH<sub>2</sub>)<sub>e</sub>-E-(CH<sub>2</sub>)<sub>r</sub>-, wherein E is -O-, -C(O)-, phenylene, -NR<sup>22</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;

-(C2-C6)alkenylene-; and

-(CH<sub>2</sub>)f-V-(CH<sub>2</sub>)g-, wherein V is C<sub>3</sub>-C<sub>6</sub> cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6;

R12 is

R<sup>13</sup> and R<sup>14</sup> are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and

-C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-; or R<sup>12</sup> together with an adjacent R<sup>13</sup>, or R<sup>12</sup> together with an adjacent R<sup>14</sup>, form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>6</sub> alkyl)- group;

a and b are independently 0, 1, 2 or 3, provided both are not zero; provided that when R<sup>13</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, a is 1; provided that when R<sup>14</sup> is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, b is 1; provided that when a is 2 or 3, the R<sup>13</sup>'s can be the same or different; and provided that when b is 2 or 3, the R<sup>14</sup>'s can be the same or different; and when Q is a bond, R<sup>1</sup> also can be:

M is -O-, -S-, -S(O)- or -S(O)2-;

X, Y and Z are independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub>)alkyl- and -C(di-(C<sub>1</sub>-C<sub>6</sub>)alkyl);

R<sup>10</sup> and R<sup>11</sup> are independently selected from the group consisting of 1-3 substituents independently selected from the group consisting of

(C1-C6)alkyl, -OR19, -O(CO)R19, -O(CO)OR21, -O(CH2)1-5OR19.

-O(CO)NR19R20, -NR19R20, -NR19(CO)R20, -NR19(CO)OR21,

-NR19(CO)NR20R25, -NR19SO2R21, -COOR19, -CONR19R20, -COR19,

 $-\mathsf{SO}_2\mathsf{NR}^{19}\mathsf{R}^{20}, \quad \mathsf{S}(\mathsf{O})_{0\text{-}2}\mathsf{R}^{21}, \quad -\mathsf{O}(\mathsf{CH}_2)_{1\text{-}10}\text{-}\mathsf{COOR}^{19}, \quad -\mathsf{O}(\mathsf{CH}_2)_{1\text{-}10}\mathsf{CONR}^{19}\mathsf{R}^{20},$ 

-(C1-C6 alkylene)-COOR<sup>19</sup>, -CH=CH-COOR<sup>19</sup>, -CF3, -CN, -NO<sub>2</sub> and halogen;

R<sup>15</sup> and R<sup>17</sup> are independently selected from the group consisting of -OR<sup>19</sup>, -O(CO)OR<sup>21</sup> and -O(CO)NR<sup>19</sup>R<sup>20</sup>;

 $R^{16}$  and  $R^{18}$  are independently selected from the group consisting of H, (C1-C6)alkyl and aryl; or  $R^{15}$  and  $R^{16}$  together are =0, or  $R^{17}$  and  $R^{18}$  together are =0;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1; t is 0 or 1; m, n and p are independently 0-4;

provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, s and n is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are independently 1-5, provided that the sum of j, k and v is 1-5;

$$-X_{j}^{-15}$$
  
 $-X_{j}^{-16}$ 

and when Q is a bond and  $R^1$  is  $\dot{R}^{16}$ ,  $Ar^1$  can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

R<sup>19</sup> and R<sup>20</sup> are independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl-substituted (C1-C6)alkyl;

R<sup>21</sup> is (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl or R<sup>24</sup>-substituted aryl;

R<sup>22</sup> is H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>19</sup> or -COOR<sup>19</sup>:

R<sup>23</sup> and R<sup>24</sup> are independently 1-3 groups independently selected from the group consisting of H, (C1-C6)alkyl, (C1-C6)alkoxy, -COOH, NO<sub>2</sub>,

-NR<sup>19</sup>R<sup>20</sup>, -OH and halogeno; and

R<sup>25</sup> is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy; and

(h) Formula (IX):

$$Ar^1$$
 $L$ 
 $R^8$ 
 $R^8$ 
 $R^2$ 
 $R^{1}$ 
 $R^{26}$ 
 $R^{1}$ 
 $R^{26}$ 
 $R^{26}$ 
 $R^{26}$ 
 $R^{26}$ 

or a pharmaceutically acceptable salt or solvate thereof, wherein in Formula (IX):

R<sup>1</sup> is selected from the group consisting of H, G, G<sup>1</sup>, G<sup>2</sup>, -SO<sub>3</sub>H and -PO<sub>3</sub>H;

G is selected from the group consisting of: H,

$$R^5Q$$
  $OR^4$   $R^6Q$   $OR^4$   $OR^3$   $OR^7$   $OR^5$   $OR^3$   $OR^4$   $OR^5$   $OR^3$   $OR^4$   $OR^3$   $OR^4$   $OR^5$   $OR^4$   $OR^5$   $OR^4$   $OR^5$   $OR^5$ 

wherein R, R<sup>a</sup> and R<sup>b</sup> are each independently selected from the group consisting of H, -OH, halo, -NH<sub>2</sub>, azido, (C<sub>1</sub>-C<sub>6</sub>)alkoxy(C<sub>1</sub>-C<sub>6</sub>)alkoxy or -W-R<sup>30</sup>;

W is independently selected from the group consisting of -NH-C(O)-, -O-C(O)-, -O-C(O)-N(R $^{31}$ )-, -NH-C(O)-N(R $^{31}$ )- and -O-C(S)-N(R $^{31}$ )-;

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Application No. 10/700,909
Paper Dated June 5, 2007
In Reply to Office Action of March 5, 2007
Attorney Docket No. CV06093US01

R<sup>2</sup> and R<sup>6</sup> are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, acetyl, aryl and aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl;

 $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^7$ ,  $R^{3a}$  and  $R^{4a}$  are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, acetyl, aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl and -C(O)aryl;

R<sup>30</sup> is independently selected from the group consisting of R<sup>32</sup>-substituted T, R<sup>32</sup>-substituted-T-(C<sub>1</sub>-C<sub>6</sub>)alkyl, R<sup>32</sup>-substituted-(C<sub>2</sub>-C<sub>4</sub>)alkenyl, R<sup>32</sup>-substituted-(C<sub>1</sub>-C<sub>6</sub>)alkyl, R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl and R<sup>32</sup>-substituted-(C<sub>3</sub>-C<sub>7</sub>)cycloalkyl(C<sub>1</sub>-C<sub>6</sub>)alkyl;

R<sup>31</sup> is independently selected from the group consisting of H and (C<sub>1</sub>-C<sub>4</sub>)alkyl;

T is independently selected from the group consisting of phenyl, furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, benzothiazolyl, thiadiazolyl, pyrazolyl, imidazolyl and pyridyl;

R<sup>32</sup> is independently selected from 1-3 substituents which are each independently selected from the group consisting of H, halo, (C<sub>1</sub>-C<sub>4</sub>)alkyl, -OH, phenoxy. -CF<sub>3</sub>, -NO<sub>2</sub>, (C<sub>1</sub>-C<sub>4</sub>)alkoxy, methylenedloxy, oxo, (C<sub>1</sub>-C<sub>4</sub>)alkylsulfanyl, (C<sub>1</sub>-C<sub>4</sub>)alkylsulfanyl, -N(CH<sub>3</sub>)<sub>2</sub>, -C(O)-NH(C<sub>1</sub>-C<sub>4</sub>)alkyl, -C(O)-N((C<sub>1</sub>-C<sub>4</sub>)alkyl)<sub>2</sub>, -C(O)-(C<sub>1</sub>-C<sub>4</sub>)alkyl, -C(O)-(C<sub>1</sub>-C<sub>4</sub>)alkoxy and pyrrolidinylcarbonyl; or R<sup>32</sup> is a covalent bond and R<sup>31</sup>, the nitrogen to which it is attached and R<sup>32</sup> form a pyrrolidinyl, piperidinyl, N-methyl-piperazinyl, indolinyl or morpholinyl group, or a (C<sub>1</sub>-C<sub>4</sub>)alkoxycarbonyl-substituted pyrrolidinyl, piperidinyl, N-methylpiperazinyl, indolinyl or morpholinyl group;

G<sup>1</sup> is represented by the structure:

wherein R<sup>33</sup> is independently selected from the group consisting of unsubstituted alkyl, R<sup>34</sup>-substituted alkyl, (R<sup>35</sup>)(R<sup>36</sup>)alkyl-,

 $R^{34}$  is one to three substituents, each  $R^{34}$  being independently selected from the group consisting of HOOC-, HO-, HS-, (CH<sub>3</sub>)S-, H<sub>2</sub>N-, (NH<sub>2</sub>)(NH)C(NH)-, (NH<sub>2</sub>)C(O)- and HOOCCH(NH<sub>2</sub><sup>+</sup>)CH<sub>2</sub>SS-;

R<sup>35</sup> is independently selected from the group consisting of H and NH<sub>2</sub>-;

R<sup>36</sup> is independently selected from the group consisting of H, unsubstituted alkyl, R<sup>34</sup>-substituted alkyl, unsubstituted cycloalkyl and R<sup>34</sup>-substituted cycloalkyl;

G<sup>2</sup> is represented by the structure:

wherein  $R^{37}$  and  $R^{38}$  are each independently selected from the group consisting of  $(C_1-C_6)$ alkyl and aryl;

 $\mathsf{R}^{26}$  is one to five substituents, each  $\mathsf{R}^{26}$  being independently selected from the group consisting of:

- a) H:
- b) -OH;
- c) -OCH<sub>3</sub>;
- d) fluorine;

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- e) chlorine;
- f) -O-G;
- g) -O-G<sup>1</sup>;
- h) -O-G<sup>2</sup>;
- i) -SO<sub>3</sub>H; and
- i) -PO<sub>3</sub>H;

provided that when R1 is H, R26 is not H, -OH, -OCH3 or -O-G;

Ar<sup>1</sup> is aryl, R<sup>10</sup>-substituted aryl, heteroaryl or R<sup>10</sup>-substituted heteroaryl;

Ar<sup>2</sup> is aryl, R<sup>11</sup>-substituted aryl, heteroaryl or R<sup>11</sup>-substituted heteroaryl;

L is selected from the group consisting of:

- a) a covalent bond:
- b)  $-(CH_2)_{a}$ , wherein q is 1-6;
- c) -(CH<sub>2</sub>)<sub>e</sub>-E-(CH<sub>2</sub>)<sub>r</sub>, wherein E is -O-, -C(O)-, phenylene, -NR<sup>22</sup>- or -S(O)<sub>0-2</sub>-, e is 0-5 and r is 0-5, provided that the sum of e and r is 1-6;
- d) -(C<sub>2</sub>-C<sub>6</sub>)alkenylene-;
- e) -(CH<sub>2</sub>)<sub>r</sub>V-(CH<sub>2</sub>)<sub>g</sub>-, wherein V is C<sub>3</sub>-C<sub>6</sub>cycloalkylene, f is 1-5 and g is 0-5, provided that the sum of f and g is 1-6; and

f)

$$- M - Y_d - C_{R_{16}}^{15} - Z_h - Z_m - Z_m$$

wherein M is -O-, -S-, -S(O)- or -S(O)<sub>2</sub>-;

X, Y and Z are each independently selected from the group consisting of  $-CH_2$ -,  $-CH(C_1-C_6)$ alkyl- and  $-C(di-(C_1-C_6)$ alkyl-;

R<sup>8</sup> is selected from the group consisting of H and alkyl;

 $R^{10}$  and  $R^{11}$  are each independently selected from the group consisting of 1-3 substituents which are each independently selected from the group consisting of  $(C_1-C_6)$  alkyl,  $-OR^{19}$ ,  $-O(CO)R^{19}$ ,  $-O(CO)OR^{21}$ ,  $-O(CH_2)_{1-5}OR^{19}$ ,  $-O(CO)NR^{19}R^{20}$ ,  $-NR^{19}R^{20}$ ,  $-NR^{19}(CO)R^{20}$ ,  $-NR^{19}(CO)OR^{21}$ ,  $-NR^{19}(CO)NR^{20}R^{25}$ ,  $-NR^{19}SO_2R^{21}$ ,  $-COOR^{19}$ ,  $-CONR^{19}R^{20}$ ,  $-COR^{19}$ ,  $-SO_2NR^{19}R^{20}$ ,  $S(O)_{0-2}R^{21}$ ,  $-O(CH_2)_{1-10}-COOR^{19}$ ,  $-O(CH_2)_{1-10}CONR^{19}R^{20}$ ,  $-COR^{19}$ ,  $-O(CH_2)_{1-10}CONR^{19}R^{20}$ ,  $-COR^{19}$ 

R<sup>15</sup> and R<sup>17</sup> are each independently selected from the group consisting of –OR<sup>19</sup>, -OC(O)R<sup>19</sup>, -OC(O)OR<sup>21</sup>, - OC(O)NR<sup>19</sup>R<sup>20</sup>;

R<sup>16</sup> and R<sup>18</sup> are each independently selected from the group consisting of H, (C<sub>1</sub>-C<sub>6</sub>)alkyl and aryl;

or R15 and R16 together are =O, or R17 and R18 together are =O;

d is 1, 2 or 3;

h is 0, 1, 2, 3 or 4;

s is 0 or 1:

t is 0 or 1;

m, n and p are each independently selected from 0-4;

provided that at least one of s and t is 1, and the sum of m, n, p, s and t is 1-6; provided that when p is 0 and t is 1, the sum of m, n and p is 1-5; and provided that when p is 0 and s is 1, the sum of m, t and n is 1-5;

v is 0 or 1;

j and k are each independently 1-5, provided that the sum of j, k and v is 1-5;

Q is a bond,  $-(CH_2)_{q}$ , wherein q is 1-6, or, with the 3-position ring carbon of the azetidinone, forms the spiro group

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$$R^{12} - (R^{13})_a$$
 $(R^{14})_b$ 

wherein R12 is

 $R^{13}$  and  $R^{14}$  are each independently selected from the group consisting of -CH<sub>2</sub>-, -CH(C<sub>1</sub>-C<sub>6</sub> alkyl)-, -C(di-(C<sub>1</sub>-C<sub>6</sub>) alkyl), -CH=CH- and -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-; or  $R^{12}$  together with an adjacent  $R^{13}$ , or  $R^{12}$  together with an adjacent  $R^{14}$ , form a -CH=CH- or a -CH=C(C<sub>1</sub>-C<sub>6</sub> alkyl)- group;

a and b are each independently 0, 1, 2 or 3, provided both are not zero; provided that when  $R^{13}$  is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, a is 1; provided that when  $R^{14}$  is -CH=CH- or -C(C<sub>1</sub>-C<sub>6</sub> alkyl)=CH-, b is 1; provided that when a is 2 or 3, the  $R^{13}$ 's can be the same or different; and provided that when b is 2 or 3, the  $R^{14}$ 's can be the same or different;

and when Q is a bond and L is

then Ar<sup>1</sup> can also be pyridyl, isoxazolyl, furanyl, pyrrolyl, thienyl, imidazolyl, pyrazolyl, thiazolyl, pyrazinyl, pyrimidinyl or pyridazinyl;

R<sup>19</sup> and R<sup>20</sup> are each independently selected from the group consisting of H, (C1-C6)alkyl, aryl and aryl-substituted (C1-C6)alkyl;

R21 is (C1-C6)alkyl, aryl or R24-substituted aryl;

R<sup>22</sup> is H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, aryl (C<sub>1</sub>-C<sub>6</sub>)alkyl, -C(O)R<sup>19</sup> or -COOR<sup>19</sup>;

 $R^{23}$  and  $R^{24}$  are each independently selected from the group consisting of 1-3 substituents which are each independently selected from the group consisting of H, (C1-C6)alkyl, (C1-C6)alkoxy, -COOH, NO<sub>2</sub>, -NR<sup>19</sup>R<sup>20</sup>, -OH and halo; and

 $R^{25}$  is H, -OH or (C<sub>1</sub>-C<sub>6</sub>)alkoxy.